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ABSTRACT

Canada is experiencing a dramatic growth in interest in and implementation of the middle school concept. Currently needed is information on the specific characteristics of the middle school as it develops in Canada and information validating the practices that are accompanying restructure efforts. This study investigated the relationship between 18 middle school attributes and student achievement at the grade 6 level in Alberta. The middle school attributes of concern were: (1) continuous progress; (2) multi-material approach; (3) flexible scheduling; (4) social experiences; (5) physical experiences; (6) intramural activities; (7) team teaching; (8) planned gradualism; (9) exploratory studies; (10) guidance services; (11) independent study; (12) basic skill instruction; (13) creative experiences; (14) security; (15) evaluation; (16) community relations; (17) responsiveness; and (18) cooperative learning. Participating in the study was a stratified random sample of 10 schools in Alberta, drawn from 45 surveyed public schools containing grade 6 in some combination with other grades up to grade 9 but not below grade 4. Student achievement was measured by scores attained on the four Grade 6 Provincial Achievement Tests released in August 1998. Combined scores and gender-specific scores for each of the four subjects were investigated. The Middle School Attribute Survey (MSAS) measured the level of implementation of middle school programming in the sample schools. Findings indicated positive relationships between several middle school attributes and student achievement, most notably between overall implementation of middle school programming and language arts achievement for boys and social studies achievement for both genders. (Eight appendices include the MSAS, definitions of middle school attributes, and data collection forms. Contains 107 references.) (KB)

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MIDDLE SCHOOL ATTRIBUTES IN ALBERTA: THEIR EFFECTS ON STUDENT ACHIEVEMENT AT THE GRADE SIX LEVEL

by

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B.A., University of Calgary, 1983
B.Ed., University of Calgary, 1986

A Thesis Submitted to the Faculty of Education
of The University of Lethbridge in Partial Fulfilment
of the
Requirements for the Degree

MASTER OF EDUCATION

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MIDDLE SCHOOL ATTRIBUTES IN ALBERTA: THEIR EFFECTS ON STUDENT ACHIEVEMENTS AT THE GRADE SIX LEVEL

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Dedication

This thesis is dedicated to an outstanding middle level teacher, a wonderful mother, my best friend and wife, Judi, whose unwavering support and encouragement made it possible for me to take the time necessary to bring this study to fruition.

Abstract

This study investigated the relationship between middle school attributes and student achievement at the grade six level in Alberta. Student achievement was measured by scores attained on the four grade six Provincial Achievement Tests released in August 1998. Combined scores and gender-specific scores for each of the four subjects were investigated. The Middle School Attribute Survey (MSAS) measured the level of implementation of middle school programming in the sample schools.

Data analyses included Pearson product-moment correlation matrices. Information regarding the socio-economic background of the schools was used in the discussion of the results to aid in the understanding of any relationships that occurred between student achievement and implementation of middle school programming. Results indicated positive relationships between several middle school attributes and student achievement, most notably between overall implementation of middle school programming and language arts achievement for boys and social studies achievement for both genders.

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I would like to thank Dr. David Townsend, my thesis supervisor, for his encouragement and helpful guidance throughout this study. His ability to help me keep the study focused was of great benefit from the beginning to the end of this project. I would also like to thank the other members of my thesis committee, Drs. Robert Runté, Nola Aitken and Mary Thompson, for their time, interest, helpful suggestions, and encouragement throughout my research.

I also wish to extend my appreciation to all the middle level school administrators who were so willing to help in the collection of data. Their efforts at the school level are so critical to the successes of young adolescents.

Thanks to Dr. Frank Sovka who provided valuable input to this study when it was in its very early stages. I also express my gratitude to Larry Sorenson, Dorothy Negropontes, Jerry Simonsen, and Ed Wittchen for their very useful comments regarding the Middle School Attribute Survey. Dr. John Lounsbury provided many helpful suggestions regarding the survey and helped shape my thinking in several areas.

Finally, thanks to Judi, Susan, Sally, Daniel, and Brock for all their patience and understanding during those times when I was unable to be at home with them.

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CHAPTER I

Canada is experiencing growing interest in middle grades education with school boards in several provinces now implementing middle school programs. Saskatchewan has had an active middle years association for several years. Alberta and British Columbia have several middle schools in their provinces and provincial middle school associations have been formed in both provinces within the past five years. Manitoba, Ontario and the Maritime Provinces are also beginning to see merit in moving from the departmentalized junior high approach to the team-based, child-centred approach found in the middle school concept. Presently, Canadian middle school leaders must look to the United States for validation of practice in research in a movement that has been active south of the border for over thirty years.

As Canadian advocates of young adolescents examine the available data on middle school practices, they will find overwhelming evidence of the need to create specialized school programs that differ in substance from the approaches of the elementary school and the high school, a place where ten to fourteen year olds have a unique set of needs met by a unique set of academic, physical and social programs. An understanding of the practices that lead to the successful schooling of the preadolescent and the early adolescent and an examination of some Alberta middle schools form the basis of this study.

STATEMENT OF THE PROBLEM

This study addresses the issue of whether the implementation of middle school programs affects student achievement. The specific programs or characteristics chosen are identified in the literature as basic elements of successful schools for emerging adolescents. Specifically, this study will determine whether there are statistically significant relationships between key middle school attributes and student achievement at the grade six level in selected schools in Alberta. The grade six level has been chosen because it offers easily accessible achievement data through the provincial achievement tests that are administered annually in grades three, six and nine. The middle school program descriptors, that is, the independent variables are obtained from the Middle School Attribute Survey (MSAS) found in Appendix A as constructed by Reigle (1971) and revised by Bohlinger (1977). The survey was also used in dissertations by Holland (1992), and Appolloni (1993). It was further revised in this study.

SIGNIFICANCE OF THE STUDY

Canada is experiencing a dramatic growth in the interest in and implementation of the middle school concept. How schools best address the needs of preadolescents and young adolescents is a question that has come to the forefront of middle level education. At present, there is little in the literature regarding the middle school movement in Canada. Although reference to American literature on the subject of middle schools provides a framework for the Canadian educator, there is a need to identify the special characteristics of the middle school as it is developing in Canada and to provide change agents with data validating the practices that are

accompanying restructuring efforts here. Unless there are improvements seen in such key factors as student achievement, middle school practices cannot be validated as essential elements in schools for young adolescents. Because successfully implementing a middle school must be a systemic exercise, the results of this study should be of some benefit to district level administrators, government education officials, and teacher education faculty in Alberta and the rest of Canada.

DEFINITION OF TERMS

The features of successful schools for young adolescents have been discussed widely in the literature on junior high schools and middle schools.

Middle School Programming

There is no precise definition of a middle school. Some authors look to the programs the school has implemented to determine whether the school is a middle school (George & Shewey, 1994). Others cite the grade configuration as the determining factor in labelling a school a middle school. Because the population of this study is grade six students and because grade six students in Alberta may be found in a variety of grade configurations, a definition of middle school programming is probably more meaningful and useful than is the definition of a middle school. K-6 schools, 5-8 schools, 6-8 schools or, because of the rural nature of the province, K-9 schools are common configurations in which grade six students are found. A definition of middle school as offered by Alexander, Williams, Compton, Hines, Prescott, and Kealy (1969) serves the purposes of this study well: "a school providing a program planned for a range of older children, preadolescents, and early adolescents that builds upon the elementary school program for earlier

childhood and in turn is built upon by the high school's program for adolescence" (p. 5). This definition precludes labelling a school as a middle school based simply on grade configuration or the superficial implementation of young adolescent programs. An authentic middle school, by the nature of this definition, incorporates programs that are specially designed to provide a *transition* from the elementary school to the high school, based on the unique characteristics of the preadolescent and the young adolescent.

Junior High School Programming

As with defining the middle school, defining the junior high school is a complex matter. Gruhn and Douglass (1971) defined the junior high school as "an educational program which is designed particularly to meet the needs, the interests, and the abilities of boys and girls during early adolescence" (p. 4). For the purposes of this study, such a definition is rejected because it does not serve to differentiate between middle school programming and junior high school programming and because it does not describe the junior high school as it has become manifested in practice. A junior high school, as most often found in practice (Alexander et al., 1969), "embraces a philosophy based on its namesake, that is, a junior approximation of a school that includes varsity teams, school bands, cheerleaders and pep rallies that are training grounds for future teams and bands; clubs with set standards for membership; proms and graduations; and rigid departmentalization in delivering curriculum" (p. 52). A junior high school thus resembles a high school more than it does a middle school and maintains programs that are not necessarily adapted to the developmental needs of the young adolescent. Regardless of the

grade configuration of the school, grade six students will be a part of practices that resemble either middle school programming or junior high school programming.

Elementary School Programming

Because this is a study of those individuals who are about to leave their childhood or those who have recently entered adolescence, elementary school programming is not a focus. Its relevance to this study is twofold: (a) Grade six students are often a part of what has traditionally been called an elementary school, even though their needs, as will be discussed in this study, are quite different than those of children in the lower grades, and (b) middle school programming, as it will be defined in this study, is widely believed to resemble more closely the practices of the elementary school than it does the practices of the junior high school.

Transescent

The term adolescent, although popularly employed to refer to any individual between the approximate ages of 11 and 17, is inadequate in its inclusive nature. The developmental characteristics that are found within such an age span are too broad to be addressed in a uniform manner. The unique nature of the middle school client calls for a term distinct from child or adolescent. This confusion led to the term *transescent*, coined by Donald Eichhorn in the 1960s. A transescent is a student "in the stage of development which begins prior to the onset of puberty and extends through the early stages of adolescence" (Eichhorn, 1966, p. 3). Because the occurrence of puberty is transitional in nature, the period of *transescence* includes preadolescents, and early adolescents. In this study, the terms young adolescents and emerging adolescents are also used.

Puberty

Puberty is the period of rapid change to physical maturation. While puberty and adolescence are hardly mutually exclusive, they are different. Puberty is very often identified as the commencement of adolescence but is considered to end long before adolescence (Santrock, 1984). In this sense, puberty is more coincidental with early adolescence than late adolescence.

LIMITATIONS OF THE STUDY

The following are identified limitations of this study:

1. The population for the study is limited to public elementary, junior high and middle schools in Alberta.
2. Data are limited to those schools where principals complete and return the survey.
3. The extent to which schools exhibit the middle school attributes is limited to the perceptions of the principals of those schools.
4. Measurement of student achievement is limited to standardized test scores on the Provincial Achievement Tests.
5. Data regarding grade six students must be interpreted in light of the fact that these students will be in the early stages of a middle or junior high school setting.

CHAPTER II

OVERVIEW OF RELATED LITERATURE

An understanding of middle level education necessitates an examination of the origin of the junior high school movement, a review of the rationale for the transformation from a junior high school to a middle school, and a discussion of preadolescent and early adolescent needs and how effective schools work to address these needs.

The Junior High School Movement

Junior high schools originated at the turn of the century. Proponents held the prevention of dropouts and the preparation of adolescents for the job market, through improved means of addressing adolescent-specific concerns, as the main rationale for the junior high school's existence (Koos, 1920). Indeed, the extent of the dropout rate in the early twentieth century was staggering. Smith, Standley and Hughes (1942) cite three studies that report an *urban* dropout rate as high as 60% by grade nine. A portal had been opened to the potential reformers of the day; yet it is these reformers who may well have been responsible for the abysmal failure of the junior high school to fulfil its mandate. Cuban (1992) describes the mood among those who had vested interests in the reformation of adolescent education at the turn of the century: "As in viewing an inkblot, each organization, group, and individual within this coalition of educators and outside reformers saw in the junior high an image of their particular hopes for this novel experiment" (p. 236). Thus the seeds of failure may well have been sown early. Fullan (1991) has subsequently offered a caveat for such cases of innovation: "Changes adopted for symbolic or opportunistic reasons ...

give change and innovation a bad name" (p. 62).

Tye (1985) identifies the Committee of Ten on Secondary School Studies as one of the most influential groups looking for change in the organization of schooling. This committee comprised five college presidents, one college professor, two private school headmasters, one high school principal, and the U.S. Commissioner of Education, all of whom made some rather expected recommendations in light of their professional affiliations. In the opinion of the committee, "several subjects now reserved for high schools--such as algebra, geometry, natural science, and foreign languages--should be begun earlier than now, and therefore within the schools classified as elementary; or as an alternative, the secondary school period should be made to begin two years earlier than at present, leaving six years instead of eight for the elementary school period" (p. 45). The Committee of Fifteen, composed of superintendents of city school systems, who believed that the reduction of elementary schooling constituted unsound educational practice, opposed this proposal of economizing time. Combined with the junior high school's confusion of purpose was a compelling need to reorganize schools to address enrolment changes (which has on more than one occasion been the source of educational innovation) such as the need to alleviate overcrowding in the four year high school, for example (Koos, 1920).

The Commission on the Reorganization of Secondary Education provided another impetus for change, based more on the recognition of adolescent needs, by suggesting that the 8-4 set-up be replaced with a 6-3-3 configuration: "The initial notion of the junior high school as a way of starting academic subjects earlier and

lowering the college entrance age was gradually giving way to the notion that the formation of a separate junior high school was a way to provide for the peculiar educational needs of early adolescents" (Tye, 1985, p. 36).

This ambiguity in the purpose of the junior high school resulted in what Larry Cuban (1992) refers to as an incremental change whereby an organizational innovation undergoes such transformation as it becomes institutionalized, that it no longer embodies the fundamental change that had precipitated its genesis. Cuban draws analogies to other public institutions such as the Young Men's Christian Association that is presently restricted to neither youth nor Christians. In the case of the junior high school, not longer after it had become well established, critics were questioning its purpose and calling for its demise.

Denunciation of the junior high invention was swift and severe in the 1940s and 1950s and focused on such practices as: (a) departmentalization (students moved from class to class, subjects were taught by different teachers); (b) curriculum was subject-centred (academic subjects were still emphasized); (c) teachers were inadequately trained for junior high school (most received their formal education in subject matter rather than knowledge of student development, and few discharged their roles of guiding teenagers); (d) teaching was similar to what occurred in high schools (dominated by textbooks, teacher-controlled lessons, and class periods of 40-50 minutes); (e) students were organized into groups that took subjects together (i.e., tracking); and (f) students exploring their interests were limited to home economics, shops, and extracurricular clubs (Douglass, cited in Cuban, 1992, p. 238).

The Developmental Needs of Transescents

School restructuring of any type should not only be based on sound research but should have as its foundation the needs of the student. Any discussion of restructuring is incomplete without reference to the unique developmental characteristics of the client. In addition to marked physical growth, the adolescent is engaged in a host of developmental tasks that include establishing a self-image, intensifying peer relationships, establishing independence, planning for the future and dealing with issues of conformity versus deviance (Simmons & Blyth, 1987). Although developmental theorists cite the importance of resolving such tasks, some psychologists, including Simmons and Blyth believe that too much emphasis has been placed on the Storm and Stress syndrome that Hall originally asserted (see Hall, 1904). In fact, in a longitudinal study of early adolescents in Milwaukee, Simmons and Blyth found the effects of pubertal development to be specific rather than global and extensive, leading the researchers to conclude that "... there is no consistent evidence of a negative change upon entry to adolescence for most...adolescent tasks for either boys or girls" (p. 346). These results may differ from those of earlier studies due to the fact that research of the adolescent had previously focussed mostly on clinical and problem populations (Takanishi, 1993). Lapsley (Montemayor, Adams, & Gullotta, 1990) argues that, from a social cognitive perspective, there is little evidence that early adolescence provides a unique transitional nature for the development of the individual. Though a developmental theorist, Kohlberg (1981), exemplifies Lapsley's argument, asserting that few people ever reach the highest

level of his moral development structure, an admission that prompts his critics to question the degree to which moral development exists as a task of the early adolescent at all. While middle school advocates may initially reject findings such as Lapsley's as counter-productive to the middle school movement, it is precisely because of the difficulty of delineating stages of development that Lapsley's results reinforce the need to establish responsive programs in schools. In fact, Eccles and Midgley (Montemayor et al., 1990) conclude that the development of the young adolescent can only be explained in the context of the timing and the nature of the transition of schooling that young adolescents usually experience. Declines in adolescent motivation, for example, may "result from the fact that junior high schools are not providing developmentally appropriate educational environments" (Montemayor et al., p. 135). Whether the transitional nature of early adolescence is a function of adolescent development or a function of the school environment or a function of both, one cannot deny that a transition of some type is occurring.

Developmental theory is subject to another criticism. O'Reilly and Frankel (1982) articulate a feminist critique of psychology, arguing that Erikson's theory, for example, is a theory for males and that women were relegated by him to fulfilling the role of mother and little else. Piaget and Kohlberg, who provide much of the philosophical underpinnings of the middle school movement, are also perceived by some as having strong masculine biases. Kohlberg's theory of moral development, which is explained later, has been criticized for characterizing women as morally deficient, as compared to men (O'Reilly and Frankel, 1982, p. 4). In spite of these legitimate concerns, the middle school concept continues to rely heavily on

developmental theory for two reasons: a) The theory is useful to the extent that it provides the basis for articulating that qualitative differences exist between young adolescents and older adolescents and that, therefore, their schooling must also qualitatively differ; and b) several practices of effective middle schools facilitate and encourage non-sexist approaches. These include opportunities for self-awareness and self-esteem, ample opportunities for exploratory courses and service learning projects, cooperative learning, and flexible grouping.

Behaviourist psychologists, who emphasize the importance of the environment in determining behaviour, support the argument that cites correlation between school setting and child behaviour. Eccles and Midgley (Montemayor et al., 1990), for example, argue that decline in adolescent academic motivation and self-perception can be attributed to the fact that junior high schools are not providing developmentally appropriate educational environments for early adolescents. The following sections will describe the characteristics of early adolescents that are unique and that oblige schools to establish responsive and specialized programs.

Physical Development

The physical world of the transescent is marked by disparity from individual to individual. This disparity, coupled with the rapid change that accompanies physical growth, is often a source of intense concern for the emerging adolescent. Strang (cited in Eichhorn, 1966) notes that sudden bodily changes have a particular impact on adolescents' images of themselves. This highlights the importance of regarding adolescent development as a *Gestalt*, recognizing that developmental characteristics are interrelated and that all school programs should thus be scrutinized from the

perspective of how they address the variety of adolescent needs.

The biological changes that accompany puberty are like nothing the body has seen since infancy. Height, weight, skeletal growth, reproductive functions and hormonal changes are the aspects of adolescent development that are cited as having the largest impact on the emerging adolescent (Santrock, 1984). Skeletal and muscular growth, including height and weight and the growth of many of the internal organs, are gradual throughout childhood and then dramatic at the time of puberty (Johnson, 1980). "The teenager will add the final 25 percent of his ultimate adult height, and as much as 50 percent of his adult weight" (Johnson, p. 135). Initial skeletal growth occurs most quickly in the extremities (Bigfoot syndrome) then, often not until a year or more later, moves to the trunk. Although estimating ages of onset of puberty is an inexact science, girls usually begin their growth spurts at the approximate age of 10½. The growth spurt for both boys and girls lasts about two years although it begins approximately two years earlier for girls than for boys (Johnson, 1980). Other sex differences in physique include greater growth in shoulder breadth for boys and hip breadth for girls and greater fat mass in girls than boys. Further, boys show reasonably well defined growth spurts in performance during puberty, whereas girls do not (Montemayor et al., 1990, p. 49).

If the growth curve of the muscular-skeletal system during puberty is dramatic, then the growth curve of the reproductive organs during this time is simply extraordinary. In a short period of time, reproductive development goes through an incredible transformation from near dormancy in childhood to the emergence of primary sex characteristics such as menstruation for girls and the enlargement of the

penis and testes and nocturnal emissions for boys. Secondary sex characteristics include breast development and increase in hip size in girls and a broadening of the shoulders and a replacement of fat with muscle tissue in boys. Both sexes experience the appearance of body hair and a change in the texture of the skin-often with a temporary malfunctioning of the oil-producing glands, resulting in acne. Puberty is generally considered to have culminated at the time of first ejaculation for boys and menarche for girls, although adolescence endures for several years. Tanner (1962) studied extensively the phenomenon of the earlier onset of menarche and found that "age at menarche has been getting earlier by some four months per decade in Western Europe over the period of 1830-1960. Other European data ... and other American data, though not quite so regular, agree well with these figures" (p. 152). Variables such as climate, race, socio-economic conditions, and nutrition have been researched to determine their effects on rates of maturation. Nutrition has been found to be most strongly correlated with rates of maturation (Tanner, 1962).

Individual variation in reaching puberty can cause considerable distress to the young adolescent. The average range in age of maturation is wide enough such that, with two boys of the same age, one may be completing the pubertal sequence while the other has not yet begun. The age range in menarche for girls is even wider. Both precocious development and delayed development can be a source of embarrassment and anxiety for the transescent. Whereas some early-maturing girls and boys may feel a sense of pride in achieving a new identity, and in creating a bond with similarly developed peers; intense self-consciousness may plague others, particularly girls, who, according to Staton (cited in Eichhorn, 1966) may find awkward the open

display they make of their bodies in a society that has "made an erotic fetish of the breast, particularly the full, conspicuous breast" (p. 17). Simmons and Blyth (1987) report that early-maturing girls experienced negative body image, negative school performance, and negative school behaviour but were more popular with the opposite sex. Boys generally experienced more advantageous effects, having greater satisfaction with height, muscular development and athletic ability.

In a study by Jones and Bayley (1950) regarding the social effects of delayed adolescent development, investigators looked at two groups of boys falling at opposite ends of a normal sample based on skeletal age. (Skeletal age is measured by x-raying the long bones of the hand and knee). Boys from both groups were, on average, of the same chronological age but separated by about two years in skeletal age. Jones and Bayley concluded that "late maturers gave evidence of needing to counteract their physical disadvantage in some way, usually by striving for attention or withdrawal" (p. 146). This study remains heavily cited in literature on adolescent growth and certainly provides ammunition to those advocating a restructuring of our middle and junior high schools. Even more astounding is the fact that, in a subsequent study of the same boys, the patterns of maladjustment had not substantially altered by age thirty-three. Similar results regarding late maturing girls were observed by More (cited in Eichhorn, 1966).

Maturity-associated differences are most pronounced in girls between 11 and 13 years of age and in boys between 13 and 15 years of age, a time that coincides with junior high school transition, peak participation in youth sports programs, and greater demands for independence from parents and teachers (Montemayor et al., p.

55). Eichhorn (1966) highlights the importance of the role of the school in the physical growth of the adolescent, stating that "transescent adjustment to the maturation process depends on what sort of relationship the youngster can achieve with both his adult and peer associates. Some transescents are able to adjust to growth changes because they understand or have been appropriately instructed in this area, or because their growth patterns conform to societal expectations" (p. 17). Unfortunately for many young people, these societal expectations are modelled to the extreme on television and in glossy magazines. This suggests that in order to address young adolescent concerns regarding their physical development there is a real need for adequate and effective health education classes for young adolescents as well as for opportunities for middle school students to develop strong and trusting relationships with their teachers and peers. The profundity of the physical development of the early adolescent is matched only by the attendant cognitive, social and moral changes.

Cognitive Development

Whereas middle schoolers have many tasks to accomplish as they move through adolescence, the primary aim of schools, according to many, is academic achievement. If the middle school is seen as nothing more than a safe sanctuary for the emerging adolescent, with academic growth receiving only cursory attention, it will be doomed. Successful middle schools address all needs of the adolescent, including cognitive needs.

Jean Piaget (Phillips, 1975) equates learning with development. He sees learning as a process of *equilibration* whereby previously established structures in the

student's mind are revised, a process that entails quantitative as well as qualitative change (p. 14). The very roots of the middle school are found in the work of developmental theorists such as Piaget who define the needs of the clients middle schools aim to address.

Piaget identifies four stages of intellectual development: the sensorimotor period, the preoperational period, the concrete operational period and the formal operational period (Phillips, 1975, p. 19). Each of these stages is loosely associated with certain ages and the behaviours outlined within represent the best children can do at that time. Discontinuity will be evident as children will often rely on previously acquired behaviours as they become more competent in their present stage of development.

The early adolescent is generally emerging from the stage Piaget calls the Concrete Operational Period. This characterizes children from 7 to 11 years of age. One of the hallmarks of this stage is the development of *mobility of thought*. This allows children to shift easily back and forth between their own viewpoints and those of other people. Cooperation becomes possible, whereby the roles of others are more easily conceptualized. By seeing themselves more as thinkers among thinkers, concrete operational children begin to overcome their egocentrism. Intellectual operations are less centred on the child's own body and actions allowing the child to make reference to other objects and events resulting in such cognitive powers as conserving quantity and number and more appropriately defining time and space. Children in this stage can think logically about their experiences and represent them symbolically, as in arithmetic operations (Pulaski, 1980, p. 216). Mobility of thought also facilitates *reversibility*, the ability to think backwards and forwards in

time. It is the concrete operational period that provides the foundation for the next level of cognitive development: formal operations.

The child between the ages of approximately 11 and 15 will work to master the tasks of the period of Formal Operations. It is in this final stage of cognitive development that children, now early adolescents, more fully grasp the ability to remove themselves from the concrete and manage to define reality in terms of the future and in terms of a range of possibilities. This new structure of thought includes ideals, theories and hypotheses, as the early adolescent becomes able to reason with regard to more than the present and the concrete. Early adolescents in the period of formal operations thus begin to challenge more, as they become more aware of such social ideals as justice and fairness. Their abilities to consider the perspectives of others make cooperative learning activities more appropriate as they learn to learn from each other and to analyze the arguments of others.

Piaget's studies of cognitive development have serious ramifications for the learning structures that ought to be in place in effective middle schools. His view that learning involves more than simple conditioning or transmission of knowledge places an onus on the teacher to create opportunities that allow students to *interact* with their environments. Because equilibrium is stage-dependent, the teacher needs to be sensitive to the cognitive stages of development that children go through; to recognize the great range of ages within which students may reach certain stages; and to create learning structures that are stage appropriate.

Social Development

Research on the social development of the adolescent identifies several powerful

influences that shape a youth's self-concept and self-esteem. A number of studies provide evidence for the fact that school has an overwhelming effect on how students define their roles vis-à-vis achievement, attitude towards school, peer groupings, personal potential and overall self-image.

As adolescent children become more aware of the time and space around them and of the possibilities that exist in the world, their preferences increase for interdependent activities that involve their peers. Whereas previously they sought to please their parents and other authority figures, they now often challenge the status quo in their quest for the greater ideals of justice and fairness. This stage of a person's development has been characterized as a conflict between identity and role confusion (Erikson, 1963). Faced with the physiological changes occurring within themselves and with the broader perspectives they have of themselves in their present and future worlds, young adolescents are increasingly concerned with how they look in the eyes of others. The irony is that, at the very time that early adolescents are more able to consider alternative points of view, they turn their attention on themselves and think that everybody else is doing the same thing. Elkind (1988) refers to this as the *imaginary audience*: "The hours spent by young people in the bathroom and the affinity of this age group for mirrors of whatever kind and in whatever place ... speak to the power of the audience" (p. 112).

The peer group provides the young adolescent with increased self-esteem, decreased anxiety and also contributes to the development of the young adolescent's sense of identity and interpersonal skills (Manning, 1993). As the peer takes on greater importance, parents and teachers who were, and ought to remain, the child's

greatest fans are at times relegated to the position of adversary. In trying to establish their own identities, adolescents will seek others out who share their beliefs, interests and tastes to the point where they become cliquish. However temporary and fickle these cliques may be, they provide an arena for the adolescent to demonstrate a belonging to certain ideals and idols and to test others' devotions to these. While parents and teachers need to work hard to address the cruelty that sometimes results from cliques and the exclusionary behaviours of the searching adolescent, Erikson (1963) warns us that these behaviors are a defence against role confusion, something which can result in delinquent behaviour and psychotic episodes, and therefore are healthy and normal to a point.

One of the manifestations of juvenile delinquent behaviour is the youth gang. A government definition of youth gangs highlights the developmental needs that seem to be addressed when the adolescent joins such a gang: "A youth gang/group is a group of three or more youths whose membership, though often fluid, consists of at least a stable core of members who are recognized by themselves or others as a gang/group, and who band together for social, cultural, or other reasons and impulsively or intentionally plan and commit anti-social, delinquent, or illegal acts" (Mathews, 1993, p. 13). In addition to the challenges of adolescence, contemporary society offers new pressures such as high divorce rates, the availability of illicit substances at an earlier age, earlier onset of puberty and sexual experience, increased mobility due to a globalized economy, and increased suicide rates (Brough, 1990). Clearly, in recognizing that one of their important functions is to address the social needs of the emerging adolescent, developmentally responsive middle schools will

not only facilitate academic achievement but will also provide a constructive alternative to the dysfunctional solution of youth gangs.

Moral Development

With increasing criticism being levelled at the role television and the media play in the lives and development of children, moral education has become of greater concern to parents and educators. Even so, there is widespread disagreement as to what constitutes moral education and on whom the onus lies to teach right from wrong (Kohn, 1997).

Kohlberg (1981) has identified three levels of moral development: each level contains two stages. At the preconventional level, children are responsive to cultural rules and labels of good and bad, or right or wrong, but they interpret these labels in terms of physical consequences (punishment, reward, or exchange of favours). Generally, this level of moral development is occupied by children aged four to ten. Children who are in the second level of moral development, known as the conventional level, are also generally conformist, but for different reasons. Now, maintaining the expectations of the individual's family, group or nation is perceived as valuable in its own right, regardless of any immediate consequences. Maintaining, supporting and justifying the individual's social order is important. Young adolescents generally operate at the upper end of the preconventional or lower end of the conventional stages of moral development.

Kohlberg's third level of moral development is called the postconventional, autonomous, or principled level. At this level, there is a clear effort on the part of the individual to define moral values and principles that have validity and

application, apart from the authority of other people holding these principles and apart from the individual's own identification with such groups.

Moral development in the middle school is enhanced when teachers "…pose real or hypothetical dilemmas to students in such a way as to arouse disagreement and uncertainty as to what is right" (Kohlberg, 1981, p. 27). When students are engaged in inquiry-based learning where they are encouraged to think, to reason and to listen to one another, they are more apt to advance their moral development. The kinds of interactions that occur in cooperative learning settings are also conducive to the development of moral reasoning. Exemplary middle level classrooms encourage such interactions.

Preadolescents and early adolescents have a unique set of developmental needs. They pose a challenge to teachers to become intimately familiar with these specialized needs and to develop strategies and programs in the schools that will aid in the growth of the student. Effective middle school educators will build a bridge between the ample developmental research of the young adolescent and the school environment in which they will form many lasting beliefs about themselves as girls, boys, students, athletes, and individuals. Developmentally responsive middle schools will have overriding beliefs and practices that distinguish them from schools that exist for reasons other than to serve the students.

The Middle School Movement

Preadolescents and early adolescents have specialized needs all their own. A landmark report, possibly the most cited in the history of middle school literature, offers this challenge: "Middle grade schools…are potentially society's most

powerful source to recapture millions of youth adrift, and help every young person thrive during adolescence. Yet all too often these schools exacerbate the problems of young adolescents" (Carnegie Corporation, 1989, p. 8). Are middle schools able to effectively address the unique needs of the transescents they serve? The answer to this question may be found in the research of Eccles and Midgley (cited in Montemayor et al., 1990) who blended research on the *environmental influences approach* and the *person-environment fit paradigm* and propose what they call the *stage/environment fit* approach. This looks at the fit between the developmental needs of the adolescent and the characteristics of the educational environment. Is it, for example, appropriate for the timing of the transition to junior high school to coincide with the timing of puberty and the onset of adolescence? Typically, when emerging adolescents move from an elementary school to a junior high school, the following patterns emerge: (a) Greater emphasis on teacher control and discipline, (b) more ability-grouping, (c) fewer opportunities for student decision-making, (d) more whole-class task organization, (e) assessment that focuses more on peer comparisons than mastery or growth, and (f) greater competition in and out of the classroom (Montemayor et al., p. 142). Eccles and Midgley argue that "the nature of these environmental changes coupled with the normal course of individual development results in a developmental mismatch so that the 'fit' between the early adolescent and the classroom environment is particularly poor..." (Montemayor et al., p. 143).

The National Middle School Association, in its definitive document This We Believe (1995), has outlined twelve characteristics of developmentally responsive

middle level schools: (a) educators committed to young adolescents, (b) a shared vision, (c) high expectations for all, (d) an adult advocate for every student, (e) family and community partnerships, (f) a positive school climate, (g) curriculum that is challenging, integrative, and exploratory, (h) varied teaching and learning approaches, (i) assessment and evaluation that promote learning, (j) flexible organizational structures, (k) programs and policies that foster health, wellness, and safety, and (l) comprehensive guidance and support services. Whereas a specific blueprint will not serve a useful function in the restructuring of schools for young adolescents, those attributes listed above are very often cited as necessary elements, in one form or another, of sound educational programming for ten to fourteen year olds.

Transition

It is the difficulty in matching the person to the environment that spawned one of the most cited rationales for the existence of the middle school; that is, to provide an effective *transition* from elementary school to high school. 'As noted previously, many of the early proponents of the first junior high schools advocated moving the high school academic requirements into grades seven to nine, a feat that was more easily facilitated by the creation of a 6-3-3 setup rather than the 8-4 setup that was already in place. This objective, however, created a junior high school that was merely a *junior* version of the high school. Children continued to progress from the self-contained classrooms of the elementary school to departmentalized structures that had previously been the domain of the high school. The true middle school seeks to facilitate a transition for students through programs designed to meet the

needs of a clientele who are leaving their childhood but have not fully entered their adolescence.

If the rationale for the junior high school was based on retaining students in school, economizing time, and providing earlier exploration all through meeting adolescent needs more effectively, the middle school movement was merely a call for the renewal of the aim of its failed predecessor. As the junior high school concept became institutionalized, it was clearly nothing more than a mini high school with the concomitant structure of curriculum delivery and rigidity of program. Disenchantment with adolescent education broadened to include concern with the entire organization of the school ladder (Alexander, 1969). In fact, much of the debate on middle schools versus junior high schools focused on and continues to focus on grade configuration (see Alexander and Williams, 1965; Wattenberg, 1969; Popper, 1970; Baruchin, 1967; Budde, 1964; Buell, 1962; and Koos, 1920). In spite of this debate, successful schools, whether junior high or middle school, have in place certain keystones of preadolescent and early adolescent education that are acknowledged as essential. This is a crucial point in understanding the entire middle school movement. The goals of middle schools should more appropriately be referred to as goals for middle level education. There are many middle schools that exist in name only, maintaining junior high programs in practice, as are there junior high schools that implement many of the tenets of middle schools. As George and Alexander (1993) argue, "many good middle schools today that were initially created for purposes of expediency have become outstanding exemplars of programs fitting their students. This must be, of course, the ultimate rationale for establishing and

maintaining schools at any level" (p. 31). Indeed, the task is not one of creating the successful middle school so much as it is one of simply creating the successful school for young adolescents. The challenge of translating adolescent needs into practice can be traced as far back as Plato (cited in Santrock, 1984) who believed that the soul consisted of desire, spirit and reason. Plato argued that it was reason that developed at about the time we call adolescence and that this should affect the type of curricula that we offer. Aristotle (cited in Santrock) believed that it was the ability to choose that developed at the time of adolescence; Rousseau (cited in Santrock), like Plato, held that the period we call adolescence spurred the development of reason and self-consciousness which necessitated providing a variety of exploratory activities. The challenge of determining the experiences that are important in shaping a young person's mind is the legacy that is left by the Greek philosophers; it is a legacy that is left to each and every parent and teacher; and it is this legacy that forms the basis of the dilemma before us today. The response to this dilemma manifests itself in distinctive ways such that there are identifiable characteristics of a school whose primary function is to meet the needs of its populace.

Physical Experiences and Intramural Activities

A well structured physical education program in the middle school can benefit young adolescents in a variety of ways. Proponents of sports education for young adolescents cite such benefits as improved fitness, strength, coordination and self-esteem (McEwin & Dickinson, 1996). Further, because of its motivational nature to many young adolescents, creative middle school teachers have found ways to link

sports to academic subjects such as mathematics and language arts (see Gentile, 1983; Silvey & Smart, 1982; and Van-Oteghen & Mahood, 1995). There are, however, growing concerns regarding developmentally inappropriate athletic programs in schools. The accelerated growth rate of emerging adolescents combined with the wide variation among them precludes the traditional approach taken in many of our junior high and middle school sports programs. Improper practices run the gamut from gang showers to elitist team selections with overemphasis on skills that can be damaging to vulnerable muscular-skeletal development. Segesser, Morscher, and Goesele (1995), for example, have documented increased stress to adolescent growth plates and potential for irreversible physical harm to young adolescents who engage in poorly structured athletic programs. Premature judgement of a young adolescent's physical skills is inappropriate and ought not to lead to only a select group of students having access to competition and physical experiences. Because children at this age vary widely in their physical development, they may often feel inadequate in competitive situations, and be outperformed by other adolescents of the same age who happen to have accelerated physical development. Another source of frustration is found in the fact that rapid physical growth can hamper skills that had been previously mastered. For example, because we know that adolescent extremities generally develop before the hips and chest, a basketball team member may have mastered a certain shot only to find that with new growth, the skill has been lost.

The most appropriate types of physical activities for early adolescents to be engaged in are those in which they compete against themselves or in which the

whole aspect of competition, to the point where some are excluded because of delayed physical development, is downplayed. Overly competitive sports programs discourage students who are physically incompetent, unfit or unattracted to competition (National Center for Chronic Disease Prevention and Health Promotion, 1997). Physical education classes that are not developmentally appropriate are also subject to negative attitudes by young adolescents (Carlson, 1995).

David Elkind (1988) notes that the phenomenon of adults living vicariously through their children contributes to the problem of pushing children into competitive sports before they are ready: "Adult intervention interferes with the crucial learning that takes place when children arrange their own games. Certainly children learn something from competitive sports – for example, competence, self-assurance, teamwork. But this is by no means true for all or even most children who participate, many of whom end up feeling like failures" (p. 31). In many schools where organizational success is measured by the winning records of teams, the level of competition is so high that many children are excluded or choose to exclude themselves (McEwin & Dickinson, 1996). Several studies have found correlation between adolescent problem behaviour and non-participation in sports (Chung & Elias, 1996). Unless early adolescents are given appropriate role-modelling and unless schools are careful to avoid measuring organizational success by the amount of hardware in the trophy case, there is a danger that achievement, rather than competence and enjoyment, will become the overriding criteria by which adolescents judge their participation, and a further danger that schools will focus on one game to the detriment of the rest (Hendry, 1978).

Developmentally appropriate middle schools recognize that sports can provide many benefits to young adolescents but work to provide as wide a range of activities as possible and to include as many students as possible, knowing that the pursuit of identity can be compromised if programs are modelled after the high school. Appropriately structured sports help prevent experiences that are too specialized or too contingent upon where one is on the developmental continuum.

Continuous Progress

The effective middle school recognizes that the developmental nature of the young adolescent calls for learning opportunities that are independent of chronological age restrictions. Because children and adolescents learn at different rates and are in different stages of cognitive development, they ought to be provided with as much opportunity as possible for individual progress, without fear of sanction. Canadian Departments of Education have long advocated individualized approaches to instruction that address differing needs and that provide a more effective transition between the elementary school and the junior high school (see Alberta Education, 1987; Alberta Education, 1988; and British Columbia Ministry of Education, 1990).

James Beane (1993), who has written extensively on the subject of the middle school curriculum, identifies nine pressures that act upon the manner in which middle school curriculum is delivered. These are: (a) The need to be sensitive to the characteristics of the early adolescent; (b) government-mandated curriculum; (c) government-mandated testing; (d) expectations of parents and society as a whole; (e) structures of tradition; (f) teacher specialization; (g) middle school reform theories;

(h) concerns and interests of local educators; and (i) the expectations of the early adolescents (1993, pp. 10-14). While not all of these pressures restrict individualization of program, some of them seem to compete with others and it is that conflict that has hampered many well-meaning teachers in their efforts to mould the curriculum more effectively to the needs of the early adolescent. Nonetheless, innovative and effective schools have found creative ways to establish student programs that address the wide variation evident in young adolescents' cognitive abilities. Canadian examples of noteworthy programs include Bach (1997) who gives an example of the importance of validating young adolescent girls' reactions to popular culture; Shields (1996) who highlights integrative strategies used in Yellowknife and Red Deer designed to create meaningful connections for students examining history and geography; Allen (1996) who describes an e-mail penpal project between middle school students and preservice teachers; Makosz (1993) who depicts a project called Operation Minerva designed to provide middle school girls in Calgary with positive experiences in math and science; and Shuker (1987) who describes computer teleconferencing projects. Several government of Alberta curricular programs also cite adolescent-appropriate learning activities ranging from mock trials (Alberta Education, 1989) to the use of math manipulatives that "can address the diversity of learning styles and developmental stages of students" (Alberta Education, 1996, p. 2). It is upon the shoulders of innovative and developmentally responsive teachers and curriculum developers that others will stand to continue the difficult but essential task of creating individualized opportunities that will facilitate student learning.

Flexible Scheduling

While some middle school theorists caution against getting too concerned with the actual *structure* of the middle school, there are some important prerequisites to establishing a program that addresses the developmental needs of early adolescents. Flexible scheduling, also called block scheduling, is a necessary but not sufficient element in promoting developmentally appropriate delivery of curriculum. Schools that have flexible schedules allow the needs and interests of the students to drive the timetable as opposed to them being slaves to a rigid bell structure.

Flexible scheduling can give teachers more control over what and when they teach by allowing them to team and to arrange flexible groups of students for instruction. While there are many ways that flexible scheduling manifests itself, team teaching and interdisciplinary instruction are two of the most common.

Teaming and Interdisciplinary Instruction

Teaming in the middle school generally comprises one group of four or five teachers who share a team of students, a common teaching area, a block of scheduled time and a common planning period. Teacher teams often devise their own timetable and vary the groupings of the students according to such factors as student ability, unit of study and teacher expertise. The ultimate goal is to create a school within a school and draw upon the expertise of all teachers. Erb and Doda (1989) cite a myriad of ways students benefit from effectively teamed teachers. Greater autonomy is accorded teams to deal appropriately with the needs of the student, particularly if common planning time is used by teachers to discuss student needs. Teachers who work together for the benefit of a group of students are more able to

group them flexibly thus eliminating the need for grouping by ability. Teacher teams facilitate thematic and interdisciplinary units that allow students to make connections not only between disciplines but also between their world and the world outside the school. Curriculum is more easily integrated when teachers are sharing their students and teaching time, thus eliminating the artificial boundaries between disciplines. Through greater control over their own teaching and learning environments, teachers are more able to address the diverse needs of their students. Interdisciplinary teams and common planning time enable teachers to engage in more reflective practices. Improved collegiality leads to better teaching, a greater sense of professional pride and more confidence in ones own competence (Erb & Doda, 1989). Goodlad (1984), Boyer (1983), Sizer (1984), Rosenholtz (1985), Little (1982), and Ashton and Webb (1986), as cited in Erb and Doda, also expound upon the benefits of effectively teamed teachers. Although teaching teams are an oft-cited characteristic of middle schools, they are merely a means to a much more profound middle school attribute.

Interdisciplinary teaching has been widely interpreted and misinterpreted and is equally widely implemented in practice. The difficulty in teachers moving away from the traditional four academic subjects as the centre of the curriculum has had no small impact on the way schools are organized. Although middle school curriculum advocates have long called for greater emphasis on social-emotional issues in topics of study, there is considerable variance, in both theory and practice, as to how this is best facilitated. James Beane (1993) has identified four alternatives: (a) An examination of adolescent-appropriate problems in as many of the subjects as

possible; (b) thematic units in which various subject areas make subject-specific contributions; (c) skill development that spans several subjects; or (d) a general education approach that encompasses personal, social and technical themes that are planned in collaboration with the young adolescents. As the young adolescent continues to provide us with evidence of the need for, and benefits of developmentally responsive curriculum, the debate, although long from over, may resolve some of the outstanding issues facing our curriculum developers today. Certainly, whether curriculum-bound or not, the onus on exemplary schools to address more than academics is inescapable.

Social Experiences

The effective middle school provides a safe and caring community with developmentally appropriate social opportunities. Havighurst (1972) cites social-personal developmental tasks that must be mastered in middle childhood. These include: (a) Learning physical skills necessary for ordinary games, (b) building wholesome attitudes toward oneself as a growing organism, (c) learning to get along with age-mates, (d) learning an appropriate masculine or feminine social role, (e) developing fundamental skills in reading, writing, and calculating, (f) developing concepts necessary for everyday living, (g) developing conscience, morality, and a scale of values, (h) achieving personal independence, and (i) developing attitudes toward social groups and institutions. While it is incumbent upon the effective middle school to address such social developmental tasks and to help the young adolescent through the social conflicts articulated by Erikson (1963) and presented earlier, it is equally imperative that the common error of modelling middle school

social programs after the high school be avoided. George and Alexander (1993) argue that, "students who experience intensely competitive athletics, sophisticated proms, and lengthy yearbooks in junior high school frequently show less interest in those programs at the high school, when such activities are most developmentally appropriate" (p. 90).

The pressure on schools to be results-oriented; self-fulfilling initiatives by career-minded educators; increased demands by parents; and the fact that many middle school principals previously had been high school assistant principals are all factors that contribute to the presence of high school oriented social activities in the middle school (Elkind, 1988; and George & Alexander, 1993). Young adolescents who specialize in certain academic, social, or physical activities too early may be hindered in their efforts to master necessary developmental tasks leading to "narrow specialization, social and vocational maladjustment, and personal unhappiness" (Elkind, p. 66). A student leadership program that includes as many students as possible as opposed to high school-type elections that often send the most popular students to government is an example of a developmentally appropriate social program in the middle school. Henriksen (1991) describes another commonly implemented social program in the middle school: a peer support program in British Columbia that builds on the strength of the adolescent peer. Accountability in education has reached near paranoic proportions; nonetheless; as Dewey (1916) asserts, neither the qualitative nor the quantitative aspects of education are mutually exclusive; and the former may well depend upon the latter: "... the measure of the worth of the administration, curriculum and methods of instruction of the school is

the extent to which they are animated by a social spirit" (p. 358).

Planned Gradualism

The research presented earlier regarding the stage/environment fit highlights one of the most debated issues of early adolescent schooling: What is the appropriate timing and nature of the transition that should occur from elementary school to middle school? The vast variety of grade level configurations of schools in North America is evidence of this struggle. Do we want our children entering middle school or junior high school at grade five or six or seven? Do we want them changing schools at all? "Added to the diversity in students' individual development is the cumulative disparity in their prior instruction and in the notions of 'school' they bring with them from each of several feeder schools" (Little & Shulman, 1984, p. 5). Simmons and Blyth (1987), in their longitudinal study of Milwaukee students in transition, found that the change from elementary schools to junior high schools resulted in lower self-esteem, particularly for girls; and that after a transition to a new school, grade seven girls were less likely to participate in extracurricular sports and less likely to be leaders in the school whereas boys were more likely to be victimized. Both genders exhibited lower achievement. Many of these findings seemed to be sustained over a significant period of time. In light of the evidence that there are several developmental declines in the transition to a traditional junior high school, other investigators have examined the effects of school transitions at different grade levels. In comparing students who moved up a level within the same school to students who were promoted to a different school, Thornburg and Jones (1982) found that, at the sixth grade, students who remained

within the same school had higher self-esteem than students who changed schools. In the seventh grade, there were no significant differences between those that remained within the same school and those that changed schools. Nottelmann (1987) studied students moving from grade five to six and six to seven in transition and nontransition groups and predicted that those students experiencing the earlier transition would have the most success. Nottelmann's surprising findings did not support her hypothesis and further found that the transition students experienced *greater* self-esteem after the transition than did the nontransition students. Further contradicting Simmons and Blyth's study were research findings by Crockett, Petersen, Graber, Schulenberg, and Ebata (1987) concluding that children who made two consecutive transitions experienced greater gains in self-esteem than did those who made a single transition.

Eccles and Midgely (Montemayor, 1987, p. 138) explain the inconsistency of these findings by suggesting that there are more variables contributing to the effects of transition than simply the *timing* of the transition. Specifically, the *nature* of the transition must also be taken into account. What kinds of environments were the students in the aforementioned studies experiencing before and after the transition? Were the new classrooms more or less facilitating? Were they more or less innovative? Were they middle schools or junior high schools? The conclusion drawn from these findings seems to be that if the transition from elementary to junior high school could be less discontinuous and more gradual then the deleterious effects of such a transition may well be lessened. Developmentally responsive middle schools facilitate gradual transitions for the student recognizing that the school programs in

place will either help the adolescent progress or regress.

Exploratory Studies

Literature on middle school curriculum invariably includes references to exploration (see Merenbloom, 1988; Alexander et al., 1969; George & Alexander, 1993; and Stevenson, 1992). Developmentally responsive curriculum must provide young adolescent learners with ample opportunity to satisfy their changing interests and never-ending curiosity. Elkind, in interpreting Piaget's beliefs on education, states that "education need not, then, concern itself with instilling a zest for knowledge within the child since the desire to know is part of his makeup. Rather, education needs to ensure that it does not dull this eagerness to know by overly rigid curricula that disrupt the child's own rhythm and pace of learning" (1974, p. 109). The exploratory program enriches student learning, allows students to assess their strengths and weaknesses, and facilitates opportunities to answer student questions about the world around them (Merenbloom, 1988). Many middle schools offer exploratory courses on a rotating basis to allow students the opportunity to "taste" as many options as possible. A new curriculum in Alberta provides middle, junior high and high schools with the opportunity of offering over 600 courses in 22 strands including agriculture, wildlife, careers, technology, construction, photography, cosmetology, marketing, management and a host of other mini-courses designed to allow students to explore to learn more about their possibilities for eventual specialization (Alberta Education, 1997). Independent study, interdisciplinary units and service learning projects are also effective ways of offering exploratory opportunities to inquiring young adolescent minds.

Guidance Services, and Security Factor

A strong and comprehensive guidance program is an important part of successful schools for early adolescents. Because of the many developmental tasks that middle schoolers are attempting to achieve, it is important that they have open access to positive role models and effective counseling services. This can be done in a number of ways. Certainly, one of the most advocated methods of addressing young adolescent social-emotional needs in middle schools is the student-teacher advisory program (Cole, 1989; Cole, 1992; James, 1986; and George & Alexander, 1993). It is also one of the components of middle schools that appears to be the most difficult to sustain in practice (George & Shewey, 1994, p. 106). The advisory program is generally structured as a homeroom period and provides formal time for age-specific issues to be addressed. It is an attempt to facilitate the gradualism from elementary school to high school discussed earlier. This is particularly important in those schools where there remains a high degree of departmentalization with students having moved from a homeroom-based elementary school to a school where they have a large number of teachers.

The typical student-teacher advisory program has all teachers, and in some cases, support staff, taking on the role of an advocate for a small group of students. By including more than the professional staff, advisory groups can have fewer numbers of students than the academic classes. The advisory program provides each student in the school with at least one adult who will act as a mentor and someone to whom the student can turn in times of academic or social-emotional trouble. The structure of the advisory program varies widely but allows for individual, small group and

large group interactions. The purpose of the advisor is not to act as a guidance counselor but to provide support to the professional guidance services of the school and community.

Although the advisory program is often scheduled in a segregated block of time during the day, many view the ideal student guidance service as integrated throughout the day. In such a setting, teachers and support staff recognize and accept the importance of their advocacy roles, and strive for caring and support to become a seamless extension of the curriculum. Sergiovanni (1994) argues that caring is an end in itself and is necessarily interwoven with student learning and that the presence of one in the school by no means compromises the presence of the other (1994, pp. 145-146). Student advocacy ought to pervade the school day, rather than occur as an isolated block of time for building relationships. Recent brain research also supports the inclusion of social-emotional support for students in the form of metacognitive activities and activities that promote social interaction (Sylwester, 1995).

Advisory programs have been found to: (a) improve teacher-student relationships; (b) give students a feeling of more control over decisions; (c) promote an atmosphere of quality, especially according to girls; (d) provide opportunity for group work; (e) improve the sharing of feelings between students, especially girls; (f) help to maximize the altruistic nature of early adolescents; (g) reduce the incidence of smoking and alcohol use; and (h) make teachers more aware of or more attentive to student behaviour, especially according to boys (Putbrese, 1989).

Developmental Responsiveness

Outstanding middle schools have an obligation to implement curricular and pedagogical principles that are responsive to the needs of young adolescents. Because middle schools have a unique populace that places unique demands upon teachers, the competent response is to systematically plan and organize the school around these needs. This is more than "good schooling"; this is developmentally responsive schooling. Those who advocate that schools can be effective without being developmentally responsive are a barrier to restructuring efforts in middle level education. In addressing the issue of middle level teacher education, Little and Shulman (1984) posed the question: "What is distinctive about the curriculum, instruction and social organization of middle schools..." (pp. 20-21)? They respond:

> At their best, middle schools are organized to be "developmentally responsive" as well as academically effective. Teachers in these schools diagnose and teach for intellectual, social, physical and emotional development; they organize their classrooms to influence social development as well as academic achievement; they create varied opportunities for students to work in rewarding ways with one another and with adults; they integrate opportunities for experiential, activity-based learning throughout the curriculum.... Relevant teacher skills include: diagnosis of skills; pacing and sequencing; development of a range of materials; planning for and conducting structured cooperative activities among students; integrating direct instruction and inquiry-based learning; classroom management that balances adequate structure with opportunities to learn independence; planning for interdisciplinary approaches

to the development of particular concepts or skills; and more.

> In middle schools, more than in other secondary schools, teachers are asked to organize curriculum and instruction to achieve multiple ends: to ensure competence in basic skills while fostering the ability to engage in abstract reasoning; to make progress on academic tasks while building students' social competence and self-esteem. At issue is the ability to examine curriculum, instruction and classroom organization for the prospects each has to contribute to the full range of valued outcomes. (p. 21)

Developmentally responsive schools include opportunities for students to think critically and creatively, to develop responsibility, to work cooperatively and to refine research skills through varied approaches and experiences. Udall and Daniels (1991) describe thoughtful classrooms as classrooms where students will: (a) participate; (b) give reasons for answers; (c) use precise, specific words; (d) take time to think about a problem and be comfortable with the amount of time a discussion takes; (e) stick with a problem, even though it is difficult; (f) offer different answers to one problem; (g) listen to what other students say; (h) think about their thinking; and (i) ask complex-thinking questions about the topic (p. 101). In practice, thoughtful classrooms are manifested through independent study, a multi-material approach, creative experiences, authentic assessment practices, cooperative learning activities, student-to-student interaction and interdisciplinary instruction.

Stating that cooperative learning is conducive to the cognitive, social and moral

developmental needs of the young adolescent is stating the obvious. Schools for young adolescents purposefully create opportunities where students can work together in active learning situations. Cooperative learning reinforces to students that we live in a social world and that our knowledge, skills and attitudes are acquired, manipulated and valued in a social world. The Canadian Employability Skills Profile developed by the Conference Board of Canada in 1992 (cited in McLaughlin, 1995) reinforces the importance of students leaving school with democratic skills. In surveying major employers throughout Canada, the Board found three traits that employers were looking for: (a) People who can communicate, think, and continue to learn throughout their lives; (b) people who can demonstrate positive attitudes and behaviours, responsibility, and adaptability; and (c) people who can work with others. Noteworthy is the fact that employers place equal emphasis on each of these characteristics. The teamwork skills that corresponded to the trait *People who can work with others* are most effectively facilitated by cooperative learning opportunities in the school and were identified by employers as: (a) Understanding and contributing to the organization's goals; (b) understanding and working within the culture of the group; (c) planning and making decisions with others and supporting the outcomes; (d) respecting the thoughts and opinions of others within the group; (e) exercising give and take to achieve group results; (f) seeking a team approach as appropriate; and (g) leading when appropriate, mobilizing the group for high performance (McLaughlin, p. 4).

In addition to enhancing employability skills, cooperative learning activities address young adolescents' developmental needs by facilitating socialization in

positive, constructive situations, improving such characteristics as self-esteem, time on-task, ability to empathize, peer influence, and moral constructs including altruism, acceptance of differences and equality of opportunity (Slavin, 1990). There is also evidence that cooperative learning supports cognitive needs through increased student achievement (Slavin). This can come as a result of enhanced motivation; contextualized learning opportunities (the belief that social-arbitrary knowledge such as language, values, rules, morality and symbol systems, such as reading and math, can be learned only in interactions with others); or greater opportunity to cognitively restructure the material (through peer tutoring, for example).

It is not only the cooperative learning literature that highlights the importance of young adolescents having the opportunity to attach meaning to their learning. Brooks and Brooks (1993) argue that, "...teachers must provide a learning environment where students search for meaning, appreciate uncertainty, and inquire responsibly" (p.v). Piaget adds: "If the aim of intellectual training is to form intelligence rather than to stock the memory, and to produce intellectual explorers rather than mere erudition, then traditional education is manifestly guilty of a grave deficiency" (cited in Dougherty, 1997, p. 28). In cognitive domains of taxonomy, such as the one developed by Benjamin Bloom (1956), the most complex levels of cognitive behaviours are synthesis and evaluation. These levels of the taxonomy facilitate creative and critical thinking by allowing students to bring in background information and to draw from a wide range of sources as well as allowing students to make qualitative and quantitative judgements. The product is *new* knowledge that

may be the result of deduction (as in the case of mathematical discoveries and generalizations) or a derivation of abstract relations from a detailed analysis (as in the case of formulating hypotheses). One can see the value in such activities to a young adolescent who is in transition between concrete operations and formal operations as articulated by Piaget (1969). The formulation of judgements is equally relevant to the moral developmental needs of early adolescents in their quest for such ideals as fairness and justice. Critics of middle school reform who are wont to label developmentally responsive curriculum and pedagogy as radical and/or anarchist ought to be conciliated with Dewey's caution that the constructivist approach to education cannot be an either/or, that indeed, old knowledge is important, but that it needs to be put in context: "How shall the young become acquainted with the past in such a way that the acquaintance is a potent agent in appreciation of the living present" (1938, p. 23)?

Classroom practices that include independent study, a multi-materials approach, and creative experiences put students in the roles of explorers, questioners, and problem-solvers allowing them to, in Piagetian terms, assimilate and accommodate new knowledge. Rogers (1969) states that independent learning has a quality of personal involvement, is self-initiated, pervasive, evaluated by the learner, and has meaning as its essence. Such practices further enhance the abilities of young adolescents to bring meaning to their learning (Tomlinson, 1993). Because independent study is not for all students and because self-directed learners are easily identified (Taylor, 1995), it is a practice that is effectively responsive to the diversity in development that is so much a part of young adolescent classrooms. Multiple

Intelligences theory, as espoused by Howard Gardner (Blythe & Gardner, 1990), also promotes the need for learning in context and bemoans the virtual exclusive emphasis on mathematical and verbal intelligences in learning activities and assessment practices. Various sources including the teacher and other students form a dynamic resource base for the student. Access to exploratory courses, flexible scheduling, and independent learning activities in the middle school ensure the availability of a wide array of print and non-print materials. This is of particular importance with the proliferation of technology in society and the avenues for learning it provides. Collaborative learning opportunities, interactive learning activities, basic skill development, and independent study are potentially enhanced significantly through the seamless integration of technology in the classroom.

Although pedagogy and curriculum have long been influenced by brain research, new technology leading to recent breakthroughs in the understanding of the role of the brain in learning has the potential to revolutionize educational practice, or at the very least, to validate practices that are already in place. Sylwester (1995) argues that learning activities that provide emotional context facilitate greater recall of information during a closely related event in the world outside the school. Examples include simulations, role plays and cooperative projects. The more the activity is contextualized in real life, the more meaning it has to the student. While this issue will be addressed in more detail in the section on student evaluation, Sylwester summarizes it succinctly by declaring that "doing worksheets in school prepares a student emotionally to do worksheets in life" (p. 77).

Student Evaluation

The assessment and reporting of student learning is one of the most problematic aspects of the teaching and learning process and has recently gained increased attention in the literature and in teacher workshops. The calls for teacher and student accountability have led many to believe that the only solution to the dilemma for meaningful evaluation of student learning is norm-referenced, standardized testing. Advocates of inereased testing have anchored their dreams in such romantic movements as back to the basics, international comparisons of achievement, the normal curve, easily quantifiable results, corporate agendas and product-oriented schools.

Psychometric testing originated in Binet's intelligence testing (see Elkind, 1988), developed in the early century to identify mentally retarded children. His legacy of intelligence testing has lived on, in albeit twisted form. Many theorists are now calling for assessment practices that are more meaningful in today's society. Grant Wiggins (1993) laments the misguided efforts of those responsible for evaluating student learning: "What we must now face up to is that we have allowed a thoughtless proliferation of such tests in our educational world, without considering their limiting effects on pedagogy" (p. 5). Binet warned against using numbers to represent intelligence (Elkind, p. 52) and was very wary of the intelligence quotient. Because Binet was essentially equating intelligence with cognitive ability, both he and Piaget highlighted the importance of adapting the climate and questioning of assessment to the child's needs and to unanticipated results (Wiggins, p. 109). Piaget regularly manipulated his experiments with children, believing that it was

important to find out *why* a child arrived at a particular answer. Decontextualized assessments are seen as invalid by many: "Instruction geared to the right answer out of four 'possibles' is instruction that cannot develop depth of conceptualization or provide time for the meanderings of inquiry" (Elkind, p. 53). "Correct answers can hide misunderstanding; incorrect answers, without an opportunity to explain oneself, can easily hide deeper insight" (Wiggins, p. 9). Teachers who "number crunch" as their main source of student evaluation and, upon arriving at a numerical grade, are suddenly *surprised* at a student's achievement level, not having previously believed that student to be so competent or incompetent have fallen victim to the blinded approach that can accompany mindless, decontextualized assessment.

To state that standardized testing has no place in schools is an overstatement, but effective middle school teachers must be careful not to relegate their own assessments of student learning to the bottom drawer while basing high-stakes decisions on rigid, decontextualized instruments that are often administered in non-standard ways.

Effective middle school teachers assess their students' learning with judgement, valuing validity and reliability by gathering many pieces of information over many performances rather than relying on contrived statistics. Because of the developmental nature of adolescents, teachers are careful to avoid labelling students, knowing that development çan facilitate or hinder at any given stage. Effective middle school teachers are also adept at providing assessment tasks that are contextualized, knowing that the greater connection there is between the task and the larger world, the more learning is facilitated. Assessments that improve student

learning as opposed to simply auditing it and assessments that focus on higher-order thinking skills are more meaningful than sterile, one-shot sittings.

A Canadian Joint Advisory Group made up of a wide range of stakeholders developed an important document that offers guidelines and principles of fair assessment practices in Canada (Principles for Fair Student Assessment Practices for Education in Canada, 1993). The intent of the document is to help individuals provide fair and equitable assessments of students. Many of the principles are evident in developmentally responsive middle schools, including: (a) assessment methods that are suited to the backgrounds and prior experiences of students, (b) assessments that provide students with scoring procedures *prior* to the performance being measured, and (c) assessment procedures that are given in the proper context of their purposes. With the support of such calls for greater understanding of the purposes, limitations, and potentialities of competent assessment practices, middle schools may well be the missing link between good assessment and good instruction.

Basic Skill Instruction

The traditional approach to educating in the junior high school calls for an assumption of mastery of basic skills in the elementary school. Students who enter the junior high school lacking in certain basic skills may be labelled as slow learners or learning disabled and be subject to segregated instruction. Exemplary middle school teachers recognize the developmental diversity characteristic of the age group with which they are working and seek to accommodate differences through remediation and enrichment. This is considered a natural part of the job as it is recognized that students are neither commonly compliant nor singularly skilled. In

her landmark study of four exemplary middle schools, Joan Lipsitz notes that one of the most common features of these schools was a "willingness and ability to adapt all school practices to the individual differences in intellectual, biological and social maturation of their students" (1984, p. 167).

The concept of planned gradualism of middle schools that was presented earlier fosters the development of basic skills as teachers in the middle level accept their roles of *builders of bridges*, linking the elementary school program to the middle school program and ultimately to the high school program, providing appropriate enrichment and remediation to newly arriving students.

Community Relations

In 1996, the Province of Alberta mandated the formation of School Councils which saw every school in the province forming a committee of parents, teachers and community members for the purpose of providing a vehicle for collaborative school-based decision-making (School Act, 1994). Effective middle schools have not waited for government mandates to reach out to their communities. Strong community relations are a necessary prerequisite to successfully meeting the needs of the young adolescent. Failing to recognize parents and the community as important resources in the planning of a middle school will likely lead to future confrontation. This is particularly important at the middle level when parent participation in the schools typically declines (Wigfield & Eccles, 1995, p. 7). In addition to typical parent-teacher councils, an increasingly common method of involving the community in the school is through service learning projects (Clark, 1997). In addition to the service that is provided to the community, benefits of

service learning include: (a) community members seeing young people in positive contexts, (b) community members seeing the diversity and complexity of students, and (c) community members seeing the talents and energies of teachers (Addison-Jacobson & Addison, 1995, pp. 13-15). Interdisciplinary studies are often based on the notion of getting students out into the community or vice versa. Well-established parent volunteer programs welcome parents into the school and make them feel more a part of their child's education.

Student Achievement

When schools restructure, parents and educators, want to know, among other things, what effect such reforms will have on student achievement. Research correlating increased student achievement to the middle school concept is very recent. One of the difficulties has been defining a middle school. Vague criteria such as grade configuration or whether or not a school called itself a junior high school or a middle school were often used in differentiating between middle schools and junior high schools. Nonetheless, studies prior to 1985 identified some American middle schools that were deemed successful at the local, state or national level and found that one of the factors that consistently appeared in these schools was an academic emphasis (George & Shewey, 1994). Successful schools were further defined by their positive psychosocial environment which researchers saw as the enabling force behind the academics (George & Shewey). In 1985, a study of 160 exemplary schools in 34 states were examined for levels of implementation of middle school programs and the associated outcomes (George & Shewey). Findings indicated significant improvement in academic achievement, student behaviour,

school learning climate, and a host of other factors. A 1988 study by Lee and Smith (cited in George and Shewey) found that "middle school concepts had a positive, albeit modest, effect on students' achievement and engagement in their studies" (p. 35). In 1990, Shafer (p. 55) found increases at the grade six level in student basic skills achievement as a result of the implementation of middle school components. A 1991 study from the Maine Educational Assessment, referred to by George and Shewey, indicated that "students who had received their middle level education where the components of the concept were in place consistently outscored other students by a wide margin, in every area tested by the state-wide assessment: reading, mathematics, writing, science, social studies, and humanities" (pp. 35 – 36). Improvements in standardized test scores, grades point averages, attendance rates and several other measures were noted by respondents representing 300 middle schools in a 1993 survey by George and Shewey.

A longitudinal study of middle school programming in Illinois found significantly higher achievement in schools where middle school programs were highly implemented (Felner et al., 1997). Now that schools are more clearly implementing the concepts associated with middle level education and thus differentiating themselves from junior high schools, ultimately providing specific program components that can be researched, dissertations are beginning to provide evidence of correlation between the implementation of middle school structures and increased student achievement: see, for example, Myers (1988); Dorann (1989); Bryan (1987); Ferrara (1993); Hall (1993); Warren (1993); and Barris (1993), as cited in George and Shewey (1994).

SUMMARY

The middle school movement began almost forty years ago in the United States. It grew out of a disenchantment with the junior high school that had a mandate of reducing dropout rates and improving standards by responding to the needs of the young adolescent. In one way, the middle school was simply a renewal of the failed objective of its predecessor. The junior high school, with all its flaws has endured, and in many situations, differs little from when it was first conceived in 1910.

The ignition of the Russian rocket, Sputnik, in 1957 sparked a mood of reform in education that called for higher standards and accountability in education. The obvious void in young adolescent education coupled with the openness to change resulted in the birth of a school that was to help students achieve more as a result of an effort to more effectively meet their specialized needs: needs based on where they lay on the developmental continuum. The popularity of the middle school movement continues to rise as there are now more schools that call themselves middle schools than junior high schools. The concept came to Canada about 15 years ago and is now flourishing in many provinces as provincial associations are formed and schools adopt the corollary programs.

Two overriding characteristics of middle schools are their need to provide a transition from the elementary school to the high school and their need to address the developmental diversity of their populace. This is done through the implementation of a variety of specific attributes. Because schools differ widely in the degree to which these attributes are effected, critics charge that the middle school is simply a poorly veiled attempt to call attention to the failings of the junior high school and

that, in practice, there is little difference between the two. For this reason, one must look closely at the practices of the school and can rely on neither name nor grade configuration to determine which schools are developmentally responsive and therefore true middle schools.

This chapter described the physical, social, cognitive and moral developmental characteristics of the preadolescent and early adolescent as identified by leading theorists, including Piaget, Erikson, Kohlberg, Havighurst and Tanner. The diversity in physical growth, thinking ability, reference to authority figures and social maturity provide evidence that a special kind of schooling is necessary. The literature identifies several factors, which, when effectively implemented, have led to greater success for transescent students. These include providing opportunities for making connections: connections with peers, between subjects, with the "real" world, with past experiences, with one's own context, and with adult mentors. Successful outcomes have included higher student achievement, less truancy, greater self-esteem, and more satisfaction from parents, teachers and students.

Although not without its critics and cynics, even in this age of accountability, the middle school movement shows no signs of abating, in no small part due to the amassing evidence that it is indeed because of its responsiveness that it is effective.

CHAPTER III

RESEARCH METHODOLOGY

An explanation of the problem being studied, the null hypotheses, and the dependent and independent variables are provided in this chapter. Descriptions of the instruments used, the research population, the sample and the data collection procedures are also included. The chapter closes with an explanation of the data analysis and the level of statistical significance employed.

Restatement of the Problem

Does the implementation of middle school programs affect student achievement at the grade six level? The middle school programs chosen are reflected in the literature as highly desirable elements of successful schools for emerging adolescents.

Null Hypotheses

H_0:1

There are no relationships between the implementation of middle school attributes and overall combined student achievement.

H_0:2

There are no relationships between the implementation of middle school attributes and overall achievement by gender.

H_0:3

There are no relationships between middle school attributes and combined student achievement in mathematics.

H_0:4

There are no relationships between middle school attributes and student achievement by gender in mathematics.

H_0:5

There are no relationships between middle school attributes and combined student achievement in language arts.

H_0:6

There are no relationships between middle school attributes and student achievement by gender in language arts.

H_0:7

There are no relationships between middle school attributes and combined student achievement in social studies.

H_0:8

There are no relationships between middle school attributes and student achievement by gender in social studies.

H_0:9

There are no relationships between middle school attributes and combined student achievement in science.

H_0:10

There are no relationships between middle school attributes and student achievement by gender in science.

Relationship refers to a statistically significant correlation (alpha levels of .05 or

lower based on Pearson product-moment correlation coefficients); *middle school attributes* refer to the 18 key attributes as measured by the Middle School Attribute Survey; *combined student achievement* is measured by the percentage of students who achieve the acceptable standard as set by the provincial government on each of the Alberta Achievement Tests in math, science, social studies, and language arts; *overall combined student achievement* refers to the mean percentage of students who achieve the acceptable standard on all four of the tests; *student achievement by gender* refers to the percentage of girls and the percentage of boys who achieve the acceptable standard as set by the provincial government on the Alberta Achievement Tests in math, science, social studies, and language arts; and *overall student achievement by gender* refers to the mean percentage of girls and the mean percentage of boys who achieve the acceptable standard on all four of the tests.

Independent Variables

The independent variables in this study are the mean percentage of implementation scores for each of the eighteen attributes of middle schools and the overall percentage of the eighteen attributes obtained from the MSAS instrument. The MSAS has been used in other middle school studies, was revised in 1977 by Bohlinger, and was further revised in this study. The overall percentage score was obtained for each school by averaging the eighteen attribute scores. Scores for each school were then compared to the maximum possible score for a school with the same number of grades; a mean percentage of implementation was then created for each school for each attribute and for the total. A listing of the 18 key attributes, and the survey items associated with each attribute, are found in Table 1 on page 60.

Dependent Variables

The dependent variables in this study are the percentages of students who met the acceptable standard on each of the four grade six Provincial Achievement Tests of Alberta. An overall percentage of students achieving the acceptable standard on all four tests was also calculated. These percentages were calculated in two fashions: as combined male and female scores, and as separated male and female scores. The results of the Provincial Achievement Tests were released in August 1998 and were obtained from the school principals. The separate-subject achievement scores provide more meaningful data than one overall mean for the four core subjects. It may be shown, for example, that middle school implementation has a greater effect on achievement in some subjects but not others. Separating the scores by gender provides data regarding gender-specific benefits of middle school programming. Do girls, for example, experience some benefits that boys do not? Although the scores are the dependent variables in this study, gender can be viewed as an intervening variable in that it may have an effect on student achievement that is exclusive of any interaction between middle school programming and student achievement.

Population of the Study

The population for this study is any public school in Alberta that contains grade six in some combination with other grades up to grade nine but not below grade four. Grade 4-6 schools are not included in the population because they are essentially elementary schools that may or may not subscribe to middle school philosophy. The grade configurations of the population of schools thus include 4-7, 4-8, 4-9, 5-6, 5-7, 5-8, 5-9, 6-7, 6-8, and 6-9. The 1996/1997 Student Population by Grade, School and

Jurisdiction, Alberta (Alberta Education, 1997) was used to identify the population. The total population is 45 schools.

Sample of the Study

All schools in the population were sent the Middle School Attribute Survey (see Appendix A). Then, a stratified random sample of ten schools was chosen from those surveys that were returned. Because the range of the data was not as wide as one might have anticipated, it was necessary to establish the boundaries that would define low, medium, and high implementation of middle school programming such that an equitable distribution of schools would occur in each. Defining low implementation as overall implementation between 0%-55%, medium implementation as overall implementation between 56%-65%, and high implementation as overall implementation above 65% resulted in eleven schools at the low level of implementation, nine schools at the medium level of implementation and seven schools at the high level of implementation. This distribution would provide an opportunity for the sample to be stratified with reasonable access to randomness in each stratified sample. The ten schools that comprised the final sample were asked to provide achievement data.

Instrumentation

The instrument used to assess the independent variables was Reigle's Middle School Attribute Survey (MSAS) designed in 1971 to measure the level of implementation of key middle school attributes. Reigle developed the MSAS for a study of Michigan middle schools in 1971. Reigle's list of attributes was reviewed and validated by authorities in the field of middle grades education (Holland, 1991).

This group included Elie, Montreal, Canada; Georgiady, Miami University, Oxford, Ohio; Grooms, Educational Services Institute, Cincinnati, Ohio; Romano, Michigan State University, East Lansing, Michigan; and Williams, University of Florida, Gainesville, Florida. This group unanimously agreed upon the eighteen attributes as being key middle school components. A landmark National Middle School Association publication called This We Believe (1995) also defines the important attributes of effective middle schools. The attributes advocated by the National Middle School Association are found in the survey, albeit somewhat stratified. For example, survey questions allow for a variety of responses related to specific practices in the school that would identify the degree to which a school might be labelled a middle school. It would not have been practical to ask general questions such as *"Does your school have flexible organizational structures?"* To do so would have invited responses that tended toward a mean, as a result of the likelihood that most school principals would perceive their schools as having flexible organizational structures. To avoid the problem of broad questions that would allow for generalizations, the survey questions that were retained, added or modified were as specific as possible and served as *descriptors* of broader middle school attributes conforming as much as possible to the characteristics of middle schools found in This We Believe. Although the underlying theme of the literature regarding effective middle schools is that they are developmentally responsive and attentive to the individual needs of the student, the survey attempted to operationalize the definitions.

Table 1

Survey Items Associated With the 18 Key Middle School Attributes

	Attribute	Item Numbers
A.	Continuous Progress	1, 2
B.	Multi-Material Approach	4, 5, 6, 38, 57
C.	Flexible Scheduling	7, 8, 14, 39
D.	Social Experiences	9, 10, 40, 41, 59
E.	Physical Experiences	42, 60, 61
F.	Intramural Activities 11, 12, 43, 62	
G.	Team Teaching	13, 15, 16, 27, 68
H.	Planned Gradualism	17, 29, 58
I.	Exploratory Studies	18, 44, 45, 63
J.	Guidance Services	19, 20, 21, 22, 64
K.	Independent Study	46, 47, 65
L.	Basic Skill Instruction	23, 24, 48, 66
M.	Creative Experiences	28, 49
N.	Security Factor	30, 31
O.	Evaluation	32, 33, 50, 51, 67
P.	Community Relations	25, 34, 52, 53
Q.	Responsiveness	26, 35, 54, 55, 56
R.	Cooperative Learning	3, 36, 37

Bohlinger (1977) slightly modified Reigle's instrument in his study of Ohio middle schools and then conducted field tests of the instrument with several principals in Ohio before he used it statewide.

For the purposes of this study, although Bohlinger's changes are retained, it was necessary to make some further modifications to the instrument. Modifications were necessary for two reasons: (a) to ensure that the vocabulary was relevant to Canadian educators, and (b) to ensure congruence with the current literature on middle schools, recognizing the fact that the most recent modification to the instrument was in 1977. A total of 19 questions were modified, in most cases, slightly. Six questions were added to the survey. The survey was then field-tested and several further modifications were made as a result of suggestions from four middle school experts as identified by the Alberta Middle School Association. A copy of the letter requesting the identification of these experts is in Appendix D. A copy of the letter requesting validation of the instrument is in Appendix E. The modified survey appears in Appendix A. Appendix C contains the survey as it read before the modifications were made for this study.

Dorothy Negropontes, curriculum supervisor of Chinook's Edge School Division; Jerry Simonsen, principal of Central Middle School, Red Deer; Larry Sorenson, former principal of Springbank Middle School, now an administrative member of the Rocky View School Division; and Ed Wittchen, superintendent of Northern Lights School District all contributed to the final product. Dr. John Lounsbury, editor of publications for the National Middle School Association was also consulted and provided further feedback that is reflected in the revised version of the instrument.

Several of the items in the instrument were adapted from another instrument developed by the Center for Excellence in Middle Level Education (1997). Appendix H contains copyright permission to use the survey from the Center for Excellence in Middle Level Education.

The survey instrument for this study, the MSAS, now contains 68 questions arranged in three sections according to response type. Section one (items 1 – 37) contains multiple-choice questions with mutually exclusive responses. Section two (items 38 – 58) contains multiple-choice questions with multiple responses. Section three (items 59 - 68) contains multiple-check responses. Each question is assigned a value from zero to four using a Thurstone attitude scale. The higher the value for the response, the higher the degree of implementation of that attribute.
The cover letter that accompanied the survey that was sent to the schools is in Appendix F and the School Data Information Sheet is in Appendix G.

The Alberta Achievement Tests were chosen to provide the data for the dependent variables. These tests are administered in June of every year. Grade three students write only two tests: language arts and math. Grade six and nine students write four tests: language arts, math, social studies and science. These tests were implemented by the provincial government in 1982. The testing schedule was revised and expanded in 1994. Committees of teachers experienced with the curriculum write the tests. Every year, approximately one-third of the tests are rewritten to improve quality and to help ensure security of test items. The achievement tests are blueprinted to reflect the Alberta curricula. All tests, with the exception of the language arts test, are multiple-choice. The language arts test has two sections: a

written section requiring narrative and functional writing; and a multiple-choice section. Multiple-choice items are machine-scored and written questions are scored by teachers seconded for a week in the summer. Rubrics that had been made available to the students at the time of test writing are used by the teachers in the scoring of the written sections of the tests.

The Alberta government has declared achievement standards that a minimum number of students ought to meet. Eighty-five percent of students are expected to meet the acceptable standard and 15% are expected to meet the standard of excellence. Alberta Education also provides a process for the setting of assessment standards, the scores that the students must achieve for their test performances to be judged acceptable or excellent. Teachers are consulted through a variety of committees. Parents, post-secondary institutions and the business community are also all involved in some capacity. National and international tests influence the assessment standards. Test equating, a statistical procedure that is used to determine equivalent scores on tests, also aids in the setting of standards. The results of the tests are released in late summer or early fall and provide detailed reports that include comparisons of schools to jurisdictions and to the province. Reports are generated for the number of students that participate, for the number of students that meet standards by test section (skills versus knowledge, for example), for raw scores, for results by test item, and for results by gender.

Criticisms levelled against the tests include the controversial practice of publishing scores in the newspaper; the perception that the standards are arbitrarily set from one year to the next; the difficulty of contextualizing centralized testing

practices; the lack of standardization in the administration of the tests; and questions regarding the necessity of such a comprehensive annual testing program. These criticisms notwithstanding, the Alberta Achievement Tests provide meaningful data for the dependent variables in that they are locally constructed, referenced to the curriculum, and standardized in the province.

Data Collection

Each school in the sample was sent the following materials:

1. A letter of explanation with a request to participate in the study, Appendix F.
2. The Middle School Attribute Survey, Appendix A.
3. A School Data Information Sheet, Appendix G.
4. A token gift pen.

Principals were asked to respond to the Middle School Attribute Survey and to return the materials by mail. The responding schools were then divided into three categories vis-à-vis level of implementation of middle school programming: low, medium, and high. Percentages of students achieving the grade six provincial achievement test standards were obtained from ten principals who represented the spectrum of implementation but were then selected randomly. Three schools were randomly selected from below 56% implementation; four from 56% - 65% implementation and three from 66% - 100% implementation.

Data Analysis

Numerical values are assigned to each question on the MSAS instrument (see Appendix C for examples). Because each middle school attribute was operationalized through several questions on the MSAS (see Table 1), it was

necessary to tabulate a mean percentage of implementation score for each attribute and for the total of the attributes for each school. Mean attribute scores were determined by dividing the sum of the scores for each question related to a particular attribute by the total possible score for that attribute and then converting it to a percentage. An overall mean was then calculated by dividing the total of the mean attribute scores by the total possible and converting the number to a percentage. It was necessary to compute percentages from the attribute implementation scores to facilitate the comparison of schools with differing grade organizations since certain survey items apply only to a particular grade. Because implementation levels were converted to percentages, questions that did not apply to certain schools because of varying grade configurations had no negative effects on the weighting each characteristic held in the comparison of schools. The mean percentages of implementation scores were used to test the hypotheses.

Because the dependent and independent variables provide interval data, a correlation matrix was constructed using Pearson product-moment correlation coefficients to examine the relationships among the 15 dependent variables (achievement for each of the four core subjects and overall achievement: combined and by gender) and each of the 19 independent variables (18 middle school attributes and the mean of the 18 attributes).

Each of the responding principals was also asked to provide information regarding the socio-economic levels of their schools on the School Data Information Sheet (Appendix G). This data was used in the discussion of the correlation analyses to determine if, and to what degree, there were significant differences in the socio-

economic levels of the schools such that they may have intervened in the achievement levels of the students.

Analysis of Non-Respondent Bias

Schools that did not respond to the attribute survey were compared to those that did to determine whether significant differences existed between them according to student achievement. Combined student achievement was used because it is available, even for non-responding schools, on the world wide web (Alberta Education, 1999). Although gender-specific achievement was not a variable upon which responding and non-responding schools were compared, any determined bias or lack of bias on combined student achievement should facilitate the formulation of conclusions with respect to whether the sample is representative of the population.

Level of Significance

Before the actual research data was analyzed, it was necessary to determine what level of significance in the analysis of the data would be accepted as statistically significant. In other words, what degree of correlation between the dependent variable and the independent variables would be accepted as having occurred as a result of the existence of the independent variables as opposed to chance? This decision is based on the potential consequences of making either a Type I or Type II error. The severity of a Type I error in this study--that is, rejecting a true null hypothesis (believing that there are significant differences when there are none)--could lead schools to implement middle school programs, believing they will result in increased student achievement. The severity of a Type II error in this study--that is, failing to reject a null hypothesis when significant relationships actually do exist

between the dependent and independent variables--could lead schools to remove middle school programs they have in place, believing them to have no consequence, or alternatively, could deter school administrators from implementing needed practices. The result of needed programs failing to be implemented or of effective programs being removed was considered to be more serious than implementing programs that would make no difference. Because the consequence of making a Type II error was judged to be more serious, a level of significance of $\leq .05$ was chosen for this study.

CHAPTER IV

RESULTS OF THE STUDY

Description of the Population

All public schools in Alberta housing any combination of grades from four to nine that contained grade six (except 4-6) and listed in the 1997 Student Population by Grade, School and Jurisdiction, Alberta comprised the population of the study (N = 45). The grade organization of one school changed, eliminating it from eligibility in this study. From a revised population of 44 schools, 27 responses were obtained. This represents a return rate of 61%. To encourage this response rate, each school that had not responded within three weeks was sent a follow-up fax reminding them of the importance of the study and asking them to return their surveys as soon as possible. One factor that may have interfered with the return of surveys was the Christmas break around which survey distribution and return centred.

As surveys were returned, item responses were entered into the computer using the SPSS statistical program. Schools were assigned numbers in ascending order as they were entered into the computer so that no school could be identified by name.

Analysis of Non-respondent Bias

A check to identify the existence of non-respondent bias was conducted to determine whether there were significant differences in student achievement between those schools that returned their surveys and those that did not. Combined achievement data for schools that did not reply was obtained from the Government of Alberta website (Alberta Education, 1999) for each of the four core subjects (language arts, math, science, and social). Gender-specific data is not available on

this website. A *t* test for independent samples was performed to determine if significant differences existed in the four combined achievement scores between respondent and non-respondent schools. The *t* values and the degrees of freedom are reported in Table 2 on pages 70 - 71. A *t* value of 2.021 with $p = .05$ and 41 *df* was required for rejecting the null hypotheses (no significant differences between respondent and non-respondent groups). Since the *t* values were less than 2.021, the null hypotheses were retained, indicating that there was not a significant difference between respondent and non-respondent schools on combined student achievement. Whereas it was not possible to analyze non-respondent bias on the criteria of gender-specific student achievement, because no bias was evident for the criteria of combined student achievement, it appears that non-respondent bias was minimal, if it existed at all.

Table 2

t tests for Non-Respondent Bias Check

Language Arts - Overall

	No. of Cases	Mean	*SD*	*SE* of the Mean
Non - respondent	16	84.88	15.82	3.96
Respondent	27	78.01	11.05	2.13

t test for Equality of Means

Mean Difference	*t* value	*df*	*p*	Table *t*	H_0
6.87	1.68	41	.05	2.021	Accept: 1.680 < 2.021

Math - Overall

	No. of Cases	Mean	*SD*	*SE* of the Mean
Non-respondent	16	78.45	19.40	4.85
Respondent	27	77.21	10.54	2.03

t test for Equality of Means

Mean Difference	*t* value	*df*	*p*	Table *t*	H_0
1.24	0.27	41	.05	2.021	Accept: 0.27 < 2.021

Science - Overall

	No. of Cases	Mean	*SD*	*SE* of the Mean
Non-respondent	16	77.91	19.12	4.78
Respondent	27	75.96	10.03	1.93

(table continues)

Table 2 (con't)

t test for Equality of Means

Mean Difference	*t* value	*df*	*p*	Table *t*	H_0
1.95	0.44	41	.05	2.021	Accept: 0.44 < 2.021

Social Studies - Overall

	No. of Cases	Mean	*SD*	*SE* of the Mean
Non-respondent	16	78.25	16.97	4.24
Respondent	27	73.20	9.90	1.91

t test for Equality of Means

Mean Difference	*t* value	*df*	*p*	Table *t*	H_0
5.05	1.24	41	.05	2.021	Accept: 1.24 < 2.021

Note. One of the non-respondent school's achievement test scores were not reported due to a small sample size, resulting in a total of 43 schools that were used to judge non-respondent bias. *p* = probability; *df* = degrees of freedom; *SE* = standard error.

From the 27 responses received, a random stratified sample was taken to identify a sample of schools for achievement test analysis. Table 3 shows the grade configurations of the schools that responded. The responding schools were divided into three categories according to their level of implementation of the middle school attributes: low implementation (0%-55%), medium implementation (56%-65%), and high implementation (66%-100%). A random sample was then taken from each stratified sample. Three schools were sampled from the low implementation category, four from the medium level of implementation and three from the high level of implementation. These ten schools were then asked to provide their grade six Provincial Achievement Test data. All ten schools provided tables that reported achievement test data for combined and gender-specific student achievement.

Table 3

Grade Configurations of Responding Schools

4-7	4-8	4-9	5-7	5-8	5-9	6-8	6-9
2	1	1	3	11	2	6	1

Description of the Sample on Independent Variables

Table 4 (pages 74-76) provides data which describe the sample. Means, minimum and maximum values and standard deviations are given for each of the 19 independent variables (the 18 middle school attributes and the overall implementation score). Planned gradualism was the attribute that had the highest

mean level of implementation. Continuous progress had the lowest level of implementation among the sample of schools. The overall level of implementation of middle school programming ranged from 46% to 71% with the overall mean level of implementation for all the sample schools being 59%.

Table 4

Mean Implementation Scores of Middle School Attributes by School

School	Continuous Progress	Multi-material Approach	Flexible Scheduling	Social Experiences	Physical experiences	Intramural activities
1	25	70	33	82	60	76
2	88	83	67	84	80	76
3	0	79	40	100	82	92
4	25	68	27	90	75	72
8	50	77	67	95	88	66
9	0	66	60	89	89	68
19	13	77	53	74	77	64
23	0	81	40	48	81	69
24	0	66	53	71	90	83
26	25	77	40	90	58	59
Grand total						
Mean	23	74	48	82	78	72
Minimum	0	66	27	48	58	59
Maximum	88	83	67	100	90	92
SD	28	6	14	15	11	10

(table continues)

Table 4 (cont'd)

School	Teaming/ interdisciplinary instruction	Planned gradualism	Exploratory Studies	Guidance services	Independent study	Basic skill instruction
1	39	89	37	89	13	79
2	64	67	71	59	69	62
3	75	100	48	52	77	73
4	75	89	44	52	14	63
8	66	100	39	61	29	27
9	86	67	77	33	0	12
19	14	78	58	44	15	23
23	66	78	89	45	0	40
24	69	100	42	55	14	53
26	47	100	72	29	71	53
Grand total						
Mean	60	87	58	52	30	49
Minimum	14	67	37	29	0	12
Maximum	86	100	89	89	77	79
SD	21	14	18	17	30	23

(table continues)

Table 4 (con't)

School	Creative Experiences	Security factor	Evaluation	Community Relations	Responsive-ness	Cooperative learning	Overall implementation score
1	33	75	33	39	54	45	54
2	83	75	61	70	71	55	71
3	100	88	42	61	57	64	68
4	100	63	91	26	46	73	61
8	83	100	65	57	57	64	66
9	17	100	55	35	57	55	54
19	33	50	35	30	46	45	46
23	83	63	59	48	50	73	56
24	100	88	97	39	57	64	63
26	100	25	74	22	64	55	59
Grand total							
Mean	73	73	61	43	56	59	60
Minimum	17	25	33	22	46	45	46
Maximum	100	100	97	70	71	73	71
SD	33	23	22	16	8	10	8

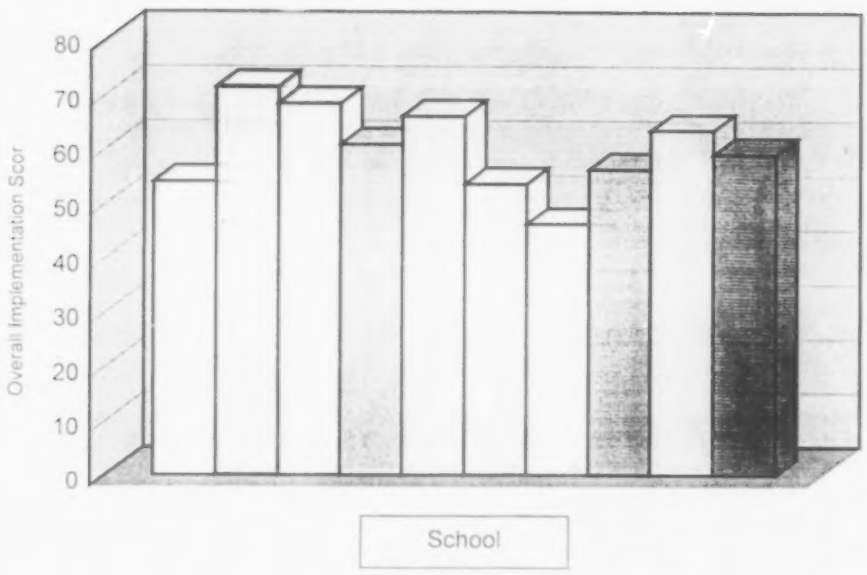

Figure 1 Overall Mean Attribute Implementation by School

Description of the Sample on Dependent Variables

Table 5 (pages 79 - 81) describes the mean scores of students on each of the four Provincial Achievement Tests. The average sample size for each school was approximately 94 students, making the mean an appropriate measure of central tendency of the scores. Combined scores and scores by gender are provided. Noteworthy is the fact that female scores were higher than male scores on the language arts tests in every school. In six of the schools, males scored lower than females on the mathematics tests, although in two of those schools the differences were less than 0.5%. In one school the mean score for females on the math test was 12% lower than it was for males. In the same school, the females scored higher than the males in language arts. In social studies and science, the gender-split was even, with girls achieving higher than boys in half the schools, and boys higher than girls in the other half. In four of the schools (schools 4, 8, 19, and 26), mean female achievement was higher than mean male achievement on all four tests. In three of the schools (schools 3, 9, and 23), mean male achievement scores were higher than mean female achievement scores on all four tests.

Table 5

Gender-Specific and Combined Provincial Achievement Test Scores by School

School	Language arts female	Language arts male	Language arts overall	Math female	Math male	Math overall
1	70.2	63.5	67.1	63.2	63.0	63.0
2	72.6	70.1	71.4	72.2	79.8	75.0
3	68.7	65.0	67.0	63.8	72.6	68.0
4	69.5	61.4	64.9	71.2	67.8	69.2
8	71.5	66.4	68.7	65.6	58.6	64.2
9	66.3	61.6	63.9	63.6	65.2	64.6
19	67.0	62.5	64.8	68.0	65.2	66.6
23	64.0	60.9	62.0	52.2	64.2	60.0
24	68.1	63.5	65.8	73.8	71.8	72.8
26	76.3	68.3	72.4	75.8	75.4	75.6
Grand total						
Mean	69.4	64.3	66.8	66.9	68.6	67.9
Minimum	64.0	60.9	62.0	52.2	58.6	60.0
Maximum	76.3	70.1	72.4	75.8	79.8	75.6
SD	3.49	3.10	3.27	6.88	6.43	5.25

(table continues)

Table 5 (con't)

School	Science female	Science male	Science overall	Social studies female	Social studies male	Social studies overall
1	65.0	61.4	63.4	63.8	64.4	64.2
2	67.0	67.8	67.4	72.0	72.0	72.0
3	68.2	73.0	70.6	66.2	67.0	66.6
4	71.6	69.0	70.2	67.8	62.4	64.8
8	66.4	58.6	64.6	69.6	62.6	68.2
9	63.4	68.4	66.0	60.2	61.8	61.0
19	65.0	64.6	64.8	65.6	64.6	65.0
23	54.6	62.0	59.4	58.2	64.0	62.0
24	64.8	65.8	65.4	66.2	64.0	65.2
26	72.6	70.8	71.8	69.0	68.0	68.6
Grand total						
Mean	65.9	66.1	66.4	65.9	65.1	65.8
Minimum	54.6	58.6	59.4	58.2	61.8	61.0
Maximum	72.6	73.0	71.8	72.0	72.0	72.0
SD	4.95	4.52	3.76	4.22	3.11	3.24

(table continues)

Table 5 (con't)

School	Overall male achievement	Overall female achievement	Overall combined achievement
1	63.1	65.6	64.4
2	72.4	71.0	71.5
3	69.4	66.8	68.1
4	65.2	70.0	67.3
8	61.6	68.3	66.4
9	64.3	63.4	63.9
19	64.2	66.4	65.3
23	62.8	57.3	60.9
24	66.3	68.2	67.3
26	70.6	73.4	72.1
Grand total			
Mean	66.0	67.0	66.7
Minimum	61.6	57.3	60.9
Maximum	72.4	73.4	72.1
SD	3.65	4.47	3.39

Testing the Null Hypotheses

Table 6 (page 83) contains a correlation matrix showing the Pearson product-moment correlation coefficients for the 15 dependent variables (male, female and overall mean scores for each of the four Provincial Achievement Tests) and the 19 independent variables (18 attributes and the overall mean). Each correlation coefficient is followed by the probability level. Because both positive and negative correlations were possible, a two-tailed test of significance was used. Alpha levels at or below .05 indicated significant r values and are asterisked.

Relationship of Overall Combined Student Achievement and Mean Percentages of Attribute Implementation (H_0:1)

Combined student achievement correlated significantly with the percentage of implementation for two of the attributes (independent study and responsiveness). Both significant correlations were positive, meaning that the greater the degree of the attribute, the higher the combined student achievement. Because two of the attributes correlated significantly, H_0:1 was not retained.

Relationship of Gender-Specific Student Achievement and Mean Percentages of Attribute Implementation (H_0:2)

Gender-specific student achievement correlated significantly with the percentage of implementation of two of the attributes for overall female achievement (social experiences and independent study) and two of the attributes for overall male achievement (independent study and responsiveness). All significant correlations were positive. Because two significant correlations were found for each of male and female overall achievement, H_0:2 was not retained.

Table 6

Pearson Product Moment Correlation Coefficients for Middle School Attributes and Achievement Test Scores

	Language arts female	Language arts male	Language arts combined	Mathematics female	Mathematics male	Mathematics combined
Continuous progress	.6173 $p = .057$	.7562 $p = .011$*	.6911 $p = .027$*	.3677 $p = .296$	.3081 $p = .386$	.3930 $p = .261$
Multi-material approach	.1908 $p = .597$	.5280 $p = .117$	.3555 $p = .313$	-.2223 $p = .537$	.2789 $p = .435$	.0514 $p = .888$
Flexible scheduling	.0495 $p = .892$	.4218 $p = .225$	.2396 $p = .505$	.1286 $p = .723$	.0353 $p = .923$	.1332 $p = .714$
Social experiences	.5840 $p = .076$	.4323 $p = .212$	.5402 $p = .107$	.4780 $p = .162$	.1551 $p = .669$	.3494 $p = .322$
Physical experiences	-.5540 $p = .097$	-.2317 $p = .519$	-.4321 $p = 212$	-.2039 $p = .572$	-.1597 $p = 660$	-.1764 $p = .626$
Intramural activities	-.2292 $p = .524$	-.0269 $p = .941$	-.1153 $p = .751$	-.0671 $p = .854$	.2959 $p = .406$	.0734 $p = .840$
Team teaching/ Interdisciplinary Instruction	-.1555 $p = .668$	-.0772 $p = .832$	-.1516 $p = .676$	-.1250 $p = .731$	.1151 $p = .752$	.0060 $p = .987$

*$p <= .05$

(table continues)

Table 6 (con't)

	Language arts female	Language arts male	Language arts combined	Mathematics female	Mathematics male	Mathematics combined
Planned gradualism	.3792 $p = .280$	.1471 $p = .685$	.2791 $p = .435$	.2768 $p = .439$	-.0602 $p = .869$	.1825 $p = .614$
Exploratory studies	-.2037 $p = .572$	-.0054 $p = .988$	-.1251 $p = .731$	-.3145 $p = .376$	.2531 $p = .480$	-.0339 $p = .926$
Guidance services	.0439 $p = .904$	.0574 $p = .875$	.0684 $p = .851$	-.1376 $p = .705$	-.2556 $p = .476$	-.2558 $p = .476$
Independent study	.7060 $p = .023$*	.8344 $p = .003$*	.8080 $p = .005$*	.4493 $p = .193$	.7215 $p = .018$*	.6620 $p = .037$*
Basic skill instruction	.3586 $p = .309$	.2697 $p = .451$	.3404 $p = .336$	.1908 $p = .598$	.4422 $p = .201$	.3072 $p = .388$
Creative experiences	.3635 $p = .302$	.3619 $p = .304$	.3405 $p = .336$	.3157 $p = .374$	.4630 $p = .178$	.4958 $p = .145$
Security factor	-.3646 $p = .300$	-.1409 $p = .698$	-.2628 $p = .463$	-.2818 $p = .430$	-.3255 $p = .359$	-.3456 $p = .328$

*$p <= .05$

(table continues)

Table 6 (con't)

	Language arts female	Language arts male	Langauge arts combined	Mathematics female	Mathematics male	Mathematics combined
Evaluation	.1982 $p = .583$	.0364 $p = .920$	.0823 $p = .821$	.5022 $p = .139$	.2712 $p = .448$	.4946 $p = .146$
Community relations	-.0322 $p = .930$	.4421 $p = .201$	.2011 $p = .578$	-.2711 $p = .449$	.1766 $p = .626$	-.0539 $p = .883$
Responsiveness	.6412 $p = .046$*	.8785 $p = .001$*	.7946 $p = .006$*	.4180 $p = .229$	.6768 $p = .032$*	.6311 $p = .050$*
Cooperative learning	-.2653 $p = .459$	-.2691 $p = .452$	-.3333 $p = .347$	-.2376 $p = .509$	-.0480 $p = .895$	-.1117 $p = .759$
Overall	.4169 $p = .231$	.6319 $p = .050$*	.5193 $p = .124$	.2700 $p = .451$	.5009 $p = .140$	.4620 $p = .179$

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*$p <= .05$

(table continues)

Table 6 (con't)

	Science female	Science male	Science combined	Social studies female	Social studies male	Social studies combined
Continuous progress	.3240 $p = .361$	-.1586 $p = .662$	.1486 $p = .682$	.7447 $p = .013$*	.5892 $p = .073$	.8114 $p = .004$*
Multi-material approach	-.1499 $p = .679$	-.0274 $p = .940$	-.0651 $p = .858$	.2561 $p = .475$	.6726 $p = .033$*	.5526 $p = .098$
Flexible scheduling	-.1617 $p = .655$	-.2518 $p = .483$	-.1933 $p = .593$	.2619 $p = .465$	.1845 $p = .610$	.3475 $p = .325$
Social experiences	.8064 $p = .005$*	.4319 $p = .213$	.7675 $p = .010$*	.5759 $p = .081$	.1107 $p = .761$	.4136 $p = .235$
Physical experiences	-.3908 $p = .264$	-.1072 $p = .768$	-.2660 $p = .458$	-.1532 $p = .673$	-.3003 $p = .399$	-.1768 $p = .625$
Intramural activities	-.0085 $p = .981$	.3178 $p = .371$	.1297 $p = .721$	.0264 $p = .942$	.1760 $p = .627$	.0428 $p = .906$
Team teaching/ Interdisciplinary Instruction	-.0403 $p = .912$	.2944 $p = .409$	.1706 $p = .637$	-.1126 $p = .757$	-.1657 $p = .647$	-.1293 $p = .722$
Planned gradualism	.4255 $p = .220$	.0296 $p = .935$	.3395 $p = .337$	.3107 $p = .382$	-.1289 $p = .723$	.1984 $p = .583$
Exploratory studies	-.4372 $p = .206$	.2000 $p = .580$	-.1782 $p = .622$	-.4057 $p = .245$	.2545 $p = .478$	-.1604 $p = .658$

*$p <= .05$

(table continues)

Table 6 (con't)	Science female	Science male	Science combined	Social Studies female	Social Studies male	Social Studies combined
Guidance services	-.0666 p = .855	-.5107 p = .131	-.3228 p = .363	.1463 p = .687	.0112 p = .976	.1338 p = .712
Independent study	.5913 p = .072	.5762 p = .081	.6974 p = .025*	.6810 p = .030*	.8189 p = .004*	.8092 p = .005*
Basic skill instruction	.3539 p = .316	.2868 p = .422	3355 p = .343	.3151 p = .375	.4477 p = .194	.3417 p = .334
Creative experiences	.3299 p = .352	.2998 p = .400	.4167 p = .231	.4758 p = .165	.3228 p = .363	.4934 p = .147
Security factor	-.2667 p = .456	-.2404 p = .503	-.2600 p = .468	-.1331 p = .714	-.3360 p = .342	-.1733 p = .632
Evaluation	.2725 p = .446	.1590 p = .661	.2755 p = .441	.2854 p = .424	-.1212 p = .739	.1289 p = .723
Community relations	-.2524 p = .482	-.1287 p = .723	-.1822 p = .614	.2337 p = .516	.4597 p = .181	.4541 p = .187
Responsiveness	.2777 p = .437	.2845 p = .426	.3427 p = .332	.5252 p = .119	.7565 p = .011*	.7108 p = .021*
Cooperative learning	-.1557 p = .667	.0615 p = 866	-.0055 p = .988	-.1145 p = .753	-.2644 p = .460	-.1395 p = .701
Overall	.3078 P = .387	.2493 p = .487	.3804 p = .278	.6032 p = .065	.4962 p = .145	.6770 p = .032*

*p <= .05

(table continues)

Table 6 (con't)	Overall female	Overall male	Overall combined
Continuous progress	.5276 $p = .117$	.3724 $p = .289$	.5536 $p = .097$
Multi-material approach	-.0294 $p = .936$	.3696 $p = .293$	.2196 $p = .542$
Flexible scheduling	0762 $p = .834$	.0664 $p = .855$	.1388 $p = .702$
Social experiences	.6574 $p = .039$*	.3171 $p = .372$	.5767 $p = .081$
Physical experiences	-.3310 $p = .350$	-.2166 $p = .548$	-.2883 $p = .419$
Intramural activities	-.0667 $p = .855$	.2603 $p = .468$	.0467 $p = .898$
Team teaching/ interdisciplinary instruction	-.1162 $p = .749$	.0901 $p = .805$	-.0179 $p = .961$
Planned gradualism	.3718 $p = .290$	-.0136 $p = .970$	.2793 $p = .435$

*$p <= .05$

Table 6 (con't)

	Overall female	Overall male	Overall combined
Exploratory studies	-.3778 p = .282	.2264 p = .529	-.1309 p = .718
Guidance services	-.0283 p = .938	-.2559 p = .475	-.1399 p = .700
Independent study	.6354 p = .048*	.8472 p = .002*	.8373 p = .003*
Basic skill instruction	.3159 p = .374	.4359 p = .208	.3754 p = .285
Creative experiences	.3962 p = .257	.4420 p = .201	.5071 p = .135
Security factor	-.2850 p = .425	-.3191 p = .369	-.3104 p = .383
Evaluation	.3749 p = .286	.1504 p = .678	.3182 p = .370
Community relations	-.1254 p = .730	.2296 p = .523	.0857 p = .814

*p <= .05

Table 6 (con't)

	Overall female	Overall male	Overall combined
Responsiveness	.4870 p = .153	.7334 p = .016*	.7004 p = .024*
Cooperative learning	-.2134 p = .554	-.1155 p = .751	-.1584 p = .662
Overall	.4130 p = .235	.5373 p = .109	.5710 p = .085

*p <= .05

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Relationship of Combined Student Achievement in Math and Mean Percentages of Attribute Implementation (H_0:3)

Combined mathematics achievement correlated significantly with two attributes (independent study and responsiveness). The correlations were positive, meaning the greater the implementation of the attributes, the higher combined student achievement in mathematics occurred. Because two significant correlations were found, H_0:3 was not retained.

Relationship of Gender-Specific Student Achievement in Math and Mean Percentages of Attribute Implementation (H_0:4)

Female mathematics achievement scores correlated significantly with none of the attributes while male math achievement correlated with two of the attributes (responsiveness and independent study). Although the results were significant for males only, because there was some gender-specific correlation, H_0:4 was not retained.

Relationship of Combined Student Achievement in Language Arts and Mean Percentages of Attribute Implementation (H_0:5)

Three attributes (responsiveness, independent study, and continuous progress) correlated positively and significantly with combined student achievement in language arts. H_0:5 was not retained.

Relationship of Gender-Specific Student Achievement in Language Arts and Mean Percentages of Attribute Implementation (H_0:6)

Two of the attributes (independent study, and responsiveness) were significantly correlated with both female and male student achievement in language arts. All four

correlations were positive. Male language arts achievement also correlated with continuous progress and overall implementation of middle schooling. The correlation between male language arts achievement and the overall implementation of middle school attributes was significant at .05. A significant correlation between male language arts achievement and the overall implementation of middle school programs is an important discovery. The null hypothesis (H_0:6) is not retained.

Relationship of Combined Student Achievement in Social Studies and Mean Percentages of Attribute Implementation (H_0:7)

Four attributes correlated positively with combined student achievement in social studies. These were continuous progress, independent study, responsiveness, and overall implementation. H_0:7 was not retained.

Relationship of Gender-Specific Student Achievement in Social Studies and Mean Percentages of Attribute Implementation (H_0:8)

Significant positive correlations were found between a multi-material approach, independent study, and responsiveness and male achievement in social studies. Significant correlations were found between female achievement in social studies and the middle school attributes of continuous progress and independent study. All the correlations found were positive and high; H_0:8 was not retained.

Relationship of Combined Student Achievement in Science and Mean Percentages of Attribute Implementation (H_0:9)

Social experiences and independent study were the two attributes that correlated

significantly with combined student achievement in science. Both correlations were positive and moderate to high. H_0:9 was not retained.

Relationship of Gender-Specific Student Achievement in Science and Mean Percentages of Attribute Implementation (H_0:10)

There were no middle school attributes that significantly correlated with male achievement in science. Social experiences was the only attribute that significantly correlated with female student achievement in science. Although limited, because there is some gender-specific correlation between science achievement and middle school programming, H_0:10 is not retained.

In summary, continuous progress correlated significantly with four dependent variables, multi-material approach with one, social experiences with three, independent study with twelve, responsiveness with nine and overall implementation correlated with two independent variables.

The qualitative data principals provided to aid in the contextual understanding of their achievement results was of limited value. Median income of communities ranged from $35 000 to $50 000, though some principals were unable to make estimates at all. The numbers of English as a Second Language students in each of the schools were insignificant in terms of effects they may have had on student results. Most schools had none. The highest was six. The information provided by school principals regarding student suspensions was also deemed to be of no value in determining how much they may have been intervening variables in student achievement. Responses indicated a wide variation in interpretation of suspensions such as in-school versus out-of-school. Perhaps further studies will show that there is

a negative correlation between middle school programming and student suspensions. The value of the qualitative data notwithstanding, results from the schools indicate clear correlation between student achievement and middle school programming. All subjects had correlation to at least some of the middle school attributes.

CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

This study examined the relationships that exist between grade six student achievement and middle school programming. The ten null hypotheses stated that there were no statistically significant relationships between student achievement and middle school programming in any of the four subjects for girls, boys, or girls and boys combined. None of the ten null hypotheses were retained. All of the achievement data related to at least some of the middle school attributes. The attributes that correlated with achievement were continuous progress, multi-material approach, social experiences, independent study, responsiveness, and overall implementation. Particularly noteworthy were significant correlations between overall implementation of middle schooling and language arts achievement for boys as well as social studies for both boys and girls. This suggests that achievement in the humanities may be particularly facilitated by middle school programming.

Science achievement also appeared to benefit from middle school programming. Social experiences correlated with female science achievement. Independent study does not show correlation with either male or female science achievement but shows significant correlation with combined achievement in science. A survey of the achievement data in science (Table 5) shows that females outperformed males in half the surveyed schools and males outperformed females in the other half of the schools. Combined achievement, therefore, resulted in significant correlation with the independent study attribute even though gender-specific achievement was not strong enough to correlate.

In mathematics, male and overall student achievement correlated with middle school attributes, whereas neither negative nor positive correlations were found between female student achievement and middle school programming. Although not without possible ramifications, one must exercise caution in interpreting differences in correlation between males and females. Gender differences in achievement can have many causes such that gender might be more appropriately viewed as an intervening variable that may or may not be interacting in combination with middle school attributes to effect differences in achievement. The results of this study, therefore, are more valuable from the point of view of how middle school programming contributes to either male or female achievement rather than what differences were found between male and female achievement. In order to meaningfully examine differences between male and female achievement in middle schools, sampling should be stratified to control for such variables as age of students, number of students in remediation, and background experience with subject matter (Lockheed, Thorpe, Brooks-Gunn, Casserly, & McAloon, 1985). The results of this study; that there is correlation between male and female student achievement and middle school programming, remain significant and provide a foundation for further examination of achievement differences by gender in middle schools.

Because it appears from this study that certain aspects of middle school programming may contribute to greater student achievement, it makes sense for those responsible for implementing school programs to focus on those attributes that are most likely to lead to greater success of the young adolescent. Responsiveness, for example, correlated with student achievement in nine areas. This should provide

middle school programmers with some encouragement that the more teachers know about the developmental characteristics of young adolescents and the more schools work to address the unique needs of young adolescents, the greater benefit there will be to the students. Universities that mandate courses regarding the development of the young adolescent as part of middle school certification are providing a valuable service to aspiring middle school teachers and their prospective students. Because one of the hallmarks of young adolescents is their wide variation in development, those schools whose teachers are cognizant and tolerant of and responsive to individual differences are more likely to contribute to the scholastic achievement of young adolescent students.

Because there can be no blueprint for a middle school, a myriad of possibilities exists to achieve desired attributes. Responsiveness to young adolescent needs, for example, can be accomplished through stakeholders receiving accurate and regular information regarding the developmental characteristics of young adolescents; staff inservice; collaborative development of school vision, mission and goals; ensuring that educational decisions are based on what is known about the young adolescent; an advisory program; and other means. Though there are several avenues available to establishing developmentally responsive middle schools, Felner et al. (1997) warn against a checklist approach of structural changes and suggest that changes need to be idea-driven. When sound pedagogical principles provide the rationale for restructuring, the outcomes take more precedence than the changes themselves and restructuring tends to be more integrative with initiatives building upon each other in a meaningful context.

It is important that the results of this study and that the effects of school restructuring be interpreted in an appropriate context. Middle school restructuring, for example, has often occurred for reasons other than the perceived benefits to the students. Middle school programs implemented to accommodate overcrowding, or school restructuring that takes place in times of fiscal restraint, are recipes for disaster and one would need to use extreme caution in attempting to determine any correlation between a certain program and measured outcomes. In this study for example, the range of overall implementation of middle school programming in the Province was found to be 59% with a range of 46% - 79%. This suggests that, in many ways, middle school programming is still in its infancy in this province and that, as educators continue to grapple with its meaning and its ramifications, they will make sense of its power and potential and will work to ensure that its structure does not sacrifice its substance; that is, that a middle school philosophy pervades whatever programs are put in place. What good is a student advisory program, for example, without an overriding commitment to student advocacy? As studies continue to highlight the correlation between middle school programming and student achievement, schools may make greater efforts to more completely implement middle school programs further enhancing student success in the school. Evidence is mounting that "... students in schools that seriously pursued the middle school concept with high fidelity over a number of years fared better on measures of both academic achievement and social behaviour" (Beane, 1999, p. 4). This again highlights the fact that, in order for positive outcomes to be realized, a wholehearted commitment to middle schooling must occur: in philosophy, in resources and over

time. This is particularly important within the context of the current political climate of the province of Alberta, where initiatives such as the provision of funding based on achievement exam scores could lead to very narrow restructuring efforts that have little pedagogical soundness other than raising student scores at whatever cost. Competent leadership and passionate advocacy for young adolescents will need to be the order of the day.

This study provides encouraging news to those responsible for the implementation of middle school programming for several reasons. First, several correlations were found between specific attributes and student achievement in several of the subjects. Second, no significant negative correlations were found. Third, achieving significant results, even in light of a small sample size, is of consequence to those who may wish to build upon this research. Fourth, for the 27 responding schools, because the level of implementation of middle school programming ranged from 46% to 79% with a mean of 59%; as middle school programming in the Province of Alberta evolves and becomes refined, further research may find that improved implementation may lead to greater correlation between achievement and other desirable outcomes. Fifth, because of the myriad of covariates that exist in the results of standardized test data, including socioeconomic status, and because of the difficulty of controlling these variables, research needs to continue to validate middle school programs that contribute to other worthwhile ends such as greater student self-esteem and self-confidence.

Recommendations for Further Study

Research on middle schools in Canada is in its initial stages. To aid those responsible for the education of early adolescents, research needs to continue.

Appropriate studies may include an analysis of how effective middle schools contribute to greater student, teacher and parent satisfaction of the school or of whether greater student self-esteem and self-confidence result from developmentally appropriate middle schools. There is also a need to look at the effects of middle school programming on grade nine students since they will typically have spent four to five years in a middle school before going to high school. Conversely, many school districts are configuring their schools so that grade nines become part of the high school. Middle school research that includes studies of the effects of restructuring on grade nine students will lead to a greater understanding of where these students' needs are most likely to be effectively met. Relationships between student achievement and middle school attributes continue to need to be examined with as many as controls as possible on intervening variables. Larger sample sizes would also be beneficial. Continued revision of the Middle School Attribute Survey may also serve future researchers.

Should middle school programming continue to be encouraged in schools for preadolescents and young adolescents? This study validated several of the attributes as relating to greater student achievement. While several of the attributes were not deemed to have a relationship with student achievement, nor were there any negative correlations. In the midst of calls for greater accountability in education, with the concomitant emphases on standards, standardized testing, evaluation of teachers, and funding that is contingent on results, committed educators will need to work hard to ensure that the unique needs of the young adolescents, who are striving to emerge as concerned and contributing citizens of society, are not lost in the political battles of

the day. In light of the fact that middle school programming has a relationship to student achievement, it seems desirable to continue with efforts in Alberta and Canada to restructure our middle level schools to become more developmentally responsive and to continue to apprise students, teachers, administrators, parents, and government officials of the fact that achievement and developmentally responsive schools are mutually dependent.

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Appendix A
Middle School Attribute Survey

PART I PLACE A CHECK MARK BEFORE THE ANSWER THAT **BEST** EXPLAINS YOUR CURRENT PROGRAM AS IT RELATES TO THE QUESTION.

1-A Continuous progress programs which allow students to progress at their own individual rate regardless of the chronological age are:

____ not used at this time.
____ used only with special groups.
____ used only for the first two years.
____ used only by some students for all their years at this school.
____ used by all of the students for their entire program.

2-A Continuous progress programs are planned for a student over a span of:

____ not used at this time.
____ one calendar year.
____ two calendar years.
____ three calendar years.
____ four calendar years.

3-R Students are provided opportunities to work on projects with others:

____ frequently by most of the staff.
____ frequently by some of the staff and occasionally by the others.
____ occasionally by all of the staff.
____ rarely by most of the staff.

4-B Which of the following best describes the use of technology in your school?

____ All students have regular access to compu s in a lab setting.
____ Most students have regular access to computers in a lab setting.
____ Some students have regular access to computers in a lab setting.
____ Few students have regular access to computers in a lab setting.
____ All students have regular access to computers in the classroom as part of the regular curriculum.
____ Most students have regular access to computers in the classroom as part of the regular curriculum.
____ Some students have regular access to computers in the classroom as part of the regular curriculum.
____ Few students have regular access to computers in the classroom as part of the regular curriculum.

5-B Which of the following best describes the implementation of instructional strategies in your school?

____ traditional paper-and-pencil, worksheet teaching, oral instructions; high school oriented.
____ awareness of need for change by teachers; training in new instructional strategies planned.
____ hit or miss training of staff in new instructional strategies.
____ wide variety of strategies being used by some staff; some using a few strategies.
____ wide variety of instructional strategies appropriate to young adolescents (learning styles, multiple intelligences, cooperative learning, etc.) used by all staff.

6-B For classroom instruction, audio visual materials other than videos are used:

____ very frequently by most of the staff.
____ very frequently by a few of the staff and occasionally by the others.
____ occasionally by all of the staff.
____ very rarely by most of the staff.
____ very rarely by any staff members.

7-C The basic time block used to build the schedule is:

____ thirty to forty minute periods.
____ forty to sixty minute periods.
____ a block schedule that teachers control.
____ other _____

_____

8-C Which of the below best describes your schedule at present:
ATTACH A COPY OF THE MASTER SCHEDULE IF POSSIBLE

____ traditional.
____ traditional, modified "block-time", "revolving period" or other such regular occurring modifications.
____ flexible to the degree that all periods are scheduled but are not identical in length.
____ flexible to the degree that changes occur within defined general time limits.
____ flexible to the degree that students and teachers control the daily time usage and changes occur regularly.
____ other _____

_____

9-D Sponsorships for club activities are handled by staff members who:

____ are assigned sponsorships without additional pay.
____ are paid to assume club sponsorships that are assigned.
____ volunteer to sponsor club activities without pay.
____ are paid for sponsorship that they volunteer to assume.
____ staff members do not work with club activities.

10-D At present approximately what percent of your student body regularly participates in at least one club activity?

____ none as we have no club program.
____ 25 percent or less.
____ 26 percent to 50 percent.
____ 51 percent to 75 percent.
____ 76 percent to 100 percent.

11-F Interscholastic competition is currently:

____ not offered at this school.
____ offered in one sport only.
____ offered in two sports.
____ offered in several sports.

12-F Intramural activities often use the same facilities as interscholastic activities. When this causes a time conflict, how do you schedule?

____ this does not happen because we have no intramural program.
____ this does not happen because we have no interscholastic program.
____ intramural activities take first priority and others schedule around their needs.
____ interscholastic activities take first priority and others must schedule around their needs.
____ other _____

_____

13-G Interdisciplinary team teaching, in which teachers jointly plan and carry out instructional activities for a group of students in the core subjects, operates for:

____ all students.
____ nearly all students.
____ about half of the students.
____ only a few of the students.
____ none of the students.

14-C Does your middle school have a flexible schedule in place and are your teachers organized in teams with a common group of kids, and a common schedule, including common planning time?

____ traditional high school structure with seven classes, separate teachers, bells ringing, etc.
____ block schedules but no teams.
____ teams, but common planning time not used at all or used irregularly.
____ teams with common planning time; occasional flexing and regrouping of students
____ teams with common planning time; regular flexing and regrouping; integration of curriculum; self-evaluation and establishment of growth plans.

15-G A student in Grade Six averages about how many minutes per day in a homeroom program or with an interdisciplinary team?

____ 180 minutes or more.
____ between 130 and 180 minutes.
____ between 90 and 130 minutes.
____ between 40 and 90 minutes.
____ 40 minutes or less.

16-G A student in Grade Eight averages about how many minutes per day in a homeroom program or with an interdisciplinary team?

____ 180 minutes or more.
____ between 130 and 180 minutes.
____ between 90 and 130 minutes.
____ between 40 and 90 minutes.
____ 40 minutes or less.

17-H Which of the following best describes your school program as it evolves from initial enrollment of the student to completion of the last grade?

____ completely self-contained program for the entire grade span.
____ completely departmentalized for the entire grade span.
____ modified departmentalized for the entire grade span.
____ program moves from largely self-contained to departmentalized.
____ program moves from largely self-contained to partially departmentalized.
____ other _____

_____

18-I The amount of student schedule time set aside for complementary courses students may select:

____ decreases with each successive grade.
____ is the same for all grades.
____ increases with each successive grade.
____ varies by grade level but not in any systematic manner.
____ does not exist at any grade level.

19-J Guidance services by a professional counsellor/youth worker are available upon request for:

____ all students every day.
____ all students nearly every day.
____ most of the students on a regular basis.
____ a limited number of students on a limited basis.
____ other_____

_____

20-J Guidance staff members:

____ always work closely with the teachers concerning a student.
____ often work closely with the teachers concerning a student.
____ seldom involve the teachers in their work with the students.
____ always work independently of the teachers.

21-J Guidance staff members:

____ are not expected to help teachers build their guidance skills.
____ are expected to help teachers build their guidance skills.
____ provide individual help to teachers interested in building their guidance skills.
____ provide inservice activities designed to help teachers build their guidance skills.

22-J For students in departmentalized programs, does your school have in place programs and processes which ensure that every young adolescent has at least one adult in the building who knows and cares for that individual?

____ counsellor/social worker/youth worker in building; no advisory program.
____ homeroom for announcements; no advisory program.
____ advisor/advisee program; fairly mechanical; all school has a set curriculum.
____ advisor/advisee program well-developed and flexible; meets daily.
____ individual and group counselling; fully effective advisor/advisee program that meets daily; peer programs in place.
____ other _____

_____

23-L A complementary course block that includes clinics or special classes to treat the problems of students with poor basic learning skills is:

____ not available at this time.
____ available to all students needing such help.
____ available only to the most critically handicapped learners.
____ other _____

_____

24-L The amount of time provided in the classroom for instruction in basic learning skills:

____ increases with each successive grade.
____ remains constant with each successive grade.
____ decreases with each successive grade.
____ varies greatly due to the individualized program teachers operate.

25-P Does your middle school have a vision which is shared by all stakeholder groups (administrators, board of education, teachers, support staff, parents, and students)?

____ no discussion of vision; no mission statement.
____ vision owned only by principal, or only a "paper" mission statement.
____ vision formulated by group of interested staff, disseminated to staff.
____ vision formulated by all stakeholders, disseminated to all.
____ lots of discussion; vision revisited each year; all stakeholders involved.

26-Q Does each of your stakeholder groups have a depth of understanding about "who are the kids in the middle" and what their specific needs are?

____ no development of anyone's knowledge about young adolescents; all teachers high school or elementary certified.
____ some staff and administrators are aware.
____ all staff are aware.
____ all stakeholders are aware; needs and characteristics of young adolescents drive some decisions.
____ all stakeholders are deeply aware; orientations every year for new people; needs and characteristics of young adolescents drive decision-making.

27-G Students in your school are teamed:

____ heterogeneously and departmentalized by subject.
____ homogeneously and departmentalized by subject.
____ heterogeneously and interdisciplinary.
____ homogeneously and interdisciplinary.
____ varies according to student need but largely interdisciplinary.

28-M This school has oratorical activities such as debate, public address, etc.:

____ as a part of its planned program of instruction.
____ as a part of its enrichment program.
____ not included in school activities.
____ other _____

_____

29-H Check the following that apply regarding students entering your school from feeder schools.

____ the entering students have at least one orientation in this school before they arrive.
____ a staff member from this school goes to the feeder schools at least once in the year to give an orientation to prospective students.
____ staff members from both schools meet to discuss individual student needs.
____ students deal directly with this school with any questions they have.

30-N In the operational design of this school, the role of the teacher as a guidance person is:

____ given a very strong emphasis.
____ encouraged.
____ mentioned to the staff but not emphasized.
____ left strictly to the individual teacher's personal motivation.
____ not important in our guidance operational plan and therefore not encouraged at all.
____ other _____

31-N Is the climate in your school safe, inviting and caring for all students?

____ few enjoy being here; lots of conflicts; many discipline problems.
____ student work on display; clean facility; atmosphere still not young adolescent friendly.
____ majority enjoy being there; few conflicts; facility clean and decorated; student work on display.
____ awards for all; no stars; spirit of cooperation permeates.
____ caring relationships everywhere; all valued and respected; building inviting; open communication; everyone enjoys being here.

32-O Which of the following best describes the assessment and evaluation procedures used in your school?

____ traditional letter grade report cards; test-oriented; computerized; kids compared; nothing assessed except academic achievement.
____ letter grade report cards with numeric comments; some projects.
____ letter grade report cards with numeric and some personal comments; projects used fairly regularly.
____ some self-assessment; report cards with personal comments; student projects used in most classes.
____ self-assessment; continuous progress; goals set; student-led conferences; no comparison with others; no letter grades.

33-O Parent-teacher or parent-teacher-student conferences are held on a school-wide basis:

____ not at all.
____ once per year.
____ twice per year.
____ three times per year.
____ four times per year.
____ five or more times per year.

46-K How much time would you estimate the average student spends in independent study for each grade listed below:

____ minutes per day in grade five.
____ minutes per day in grade six.
____ minutes per day in grade seven.
____ minutes per day in grade eight.

47-K Students working in independent study situations work on topics that are:

____ we have no independent study program.
____ assigned to them by the teacher.
____ of personal interest and approved by the teacher.
____ of personal interest and unrelated to classroom work.
____ other _____

_____

48-I. Students with poor basic skills can get special help in the following areas. (Check only those areas where special help on an individual basis is provided by special staff members trained to treat such situations.)

____ reading
____ spelling
____ physical education
____ mathematics
____ writing
____ other _____

49-M Dramatic presentations by students are:

____ not a part of the school program.
____ a part of the extra-curricular program.
____ a part of certain class activities planned by the teachers.
____ other _____

_____

50-O Formal evaluation of the student's work is reported by use of:

____ a standard report with letter grades or number grades.
____ teacher comments, written on a reporting form.
____ parent-teacher conferences.
____ parent-teacher-student conferences.
____ other _____

PART II FOR EACH QUESTION IN THIS SECTION CHECK ALL THE ANSWERS THAT APPLY.

38-B Which of the following types of materials are housed in your school?

___ general library books
___ compact disks
___ resources available to the community
___ current newspapers
___ below grade level reading materials
___ current magazines
___ files of past issues of newspapers
___ filmstrips
___ micro films
___ phonograph records
___ 16 mm films (include this if you are a member of a central service)
___ automated collection of materials
___ internet access
___ student computer work station
___ student publications
___ files of past issues of magazines
___ photocopier
___ maps, globes, and charts
___ collections (coins, stamps, insects, art, etc.)
___ audio tapes
___ overhead transparencies
___ display cases or areas.
___ video cassettes
___ above grade level reading materials

39-C The master class time schedule can be changed by teachers when need arises by:

___ planning with other teachers on a daily basis.
___ planning with other teachers on a weekly basis.
___ seeking administrative approval for special change.
___ requesting a change for next semester.
___ requesting a change for next year.
___ other _____

_____

40-D School dances are held for:

___ grade five
___ grade six
___ grade seven
___ grade eight

41-D A club program for students is offered for:

____ grade five
____ grade six
____ grade seven
____ grade eight

42-E The physical education program includes:

____ archery
____ badminton
____ basketball
____ bowling
____ dancing
____ field hockey
____ football
____ swimming
____ gymnastics
____ soccer
____ softball
____ tennis
____ track and field
____ wrestling
____ skiing
____ rock or wall climbing

43-F The intramural program includes:

____ team sports
____ individual sports
____ various club activities
____ coed activities
____ other _____

_____

44-I Students are allowed to elect courses from a range of complementary courses:

____ in grade five.
____ in grade six.
____ in grade seven.
____ in grade eight.
____ not at all.

45-I Complementary courses currently offered in this building are: (Check those you offer from this list and add any not listed that you offer)

____ art
____ band
____ vocal music
____ drama
____ wood shop
____ speech
____ natural resources
____ journalism
____ foreign language
____ orchestra
____ creative writing
____ keyboarding

____ other _____

46-K How much time would you estimate the average student spends in independent study for each grade listed below:

____ minutes per day in grade five.
____ minutes per day in grade six.
____ minutes per day in grade seven.
____ minutes per day in grade eight.

47-K Students working in independent study situations work on topics that are:

____ we have no independent study program.
____ assigned to them by the teacher.
____ of personal interest and approved by the teacher.
____ of personal interest and unrelated to classroom work.
____ other _____

_____

48-L Students with poor basic skills can get special help in the following areas. (Check only those areas where special help on an individual basis is provided by special staff members trained to treat such situations.)

____ reading
____ spelling
____ physical education
____ mathematics
____ writing
____ other_____

49-M Dramatic presentations by students are:

____ not a part of the school program.
____ a part of the extra-curricular program.
____ a part of certain class activities planned by the teachers.
____ other_____

_____

50-O Formal evaluation of the student's work is reported by use of:

____ a standard report with letter grades or number grades.
____ teacher comments, written on a reporting form.
____ parent-teacher conferences.
____ parent-teacher-student conferences.
____ other_____

51-O Check each of the following areas of pupil development evaluated and reported:

____ attitudes toward courses.
____ attitudes toward school.
____ attitudes toward teachers.
____ changes in self-concept.
____ social relations
____ motivation to learn.
____ personality development.

52-P Regarding a business partner in the community:

____ members of the business spend time in the school with students.
____ this school has no business partnership.
____ students spend time job shadowing in the partner's business.
____ the partner sponsors certain school activities
____ the partner receives the school newsletter regularly.
____ other _____

_____

53-P The staff presents informational programs related to the school's functions:

____ when requested by the parents.
____ once or twice a year at regular parents' meetings.
____ at open house programs.
____ at regularly scheduled "seminar type" meetings planned of interested parents.
____ other _____

_____

54-Q From the specialized areas listed below, check each which is available to students in your building. (Note that a service need not be housed within the school building to be available to your students.)

____ guidance counselors.
____ school nurse.
____ school psychologist.
____ social worker
____ special education programs.
____ special reading teacher
____ ESL program
____ police resource officer
____ speech therapist
____ other _____

_____

55-Q With regard to teacher planning of lessons, which of the following are considered by the majority of teachers on staff?

____ the curriculum.
____ cognitive development of the student.
____ social development of the student.
____ physical development of the student.
____ moral development of the student.
____ other _____

_____

56-Q From the following list check those types of auxiliary helpers available in your building:

____ paid paraprofessionals.
____ volunteer helpers from the community.
____ volunteer helpers from the student body.
____ student teachers and interns.
____ high school students.
____ other _____

_____

57-B Materials available to students in the classroom include:
(Check as many as appropriate)

____ CD Rom encyclopedias
____ internet access
____ computer word processing
____ electronic spell-check programs
____ thesauruses
____ resource books
____ free reading material

58-H Check the following that apply regarding your students moving to their next level of schooling.

____ the oldest students in this school have at least one orientation during the school year in the next school they will attend.
____ a staff member from the next level of school comes to this school at least once in the year to give an orientation to our students.
____ staff members from both schools meet to discuss individual student needs.
____ students deal directly with the next school with any questions they have.

Part III FOR EACH QUESTION IN THIS SECION PLEASE CHECK THE BOX OR BOXES THAT BEST DESCRIBE YOUR PROGRAM.

59-D School social functions are held at this school:

	During the School Day	During the Evening
Grade Five	_____	_____
Grade Six	_____	_____
Grade Seven	_____	_____
Grade Eight	_____	_____

60-E The extra-curricular program is accessible to:

	All students	Some students	No students
Grade Five	_____	_____	_____
Grade Six	_____	_____	_____
Grade Seven	_____	_____	_____
Grade Eight	_____	_____	_____

61-E What degree of emphasis does the physical education program give to the competitive and developmental aspects of the program for boys and girls?

Competitive Aspects	Boys	Girls
High	____	____
Medium	____	____
Low	____	____
Developmental Aspects		
High	____	____
Medium	____	____
Low	____	____

62-F Intramural activities are scheduled for:

	All students	Boys only	Girls only	No students
Grade Five	____	____	____	____
Grade Six	____	____	____	____
Grade Seven	____	____	____	____
Grade Eight	____	____	____	____

63-I Exploratory courses based on student interest are offered for:

	At least twice per week	Once per week	Not at all
Grade Five	____	____	____
Grade Six	____	____	____
Grade Seven	____	____	____
Grade Eight	____	____	____

64-J How do your guidance staff handle group guidance sessions?

	Regular sessions several times per week	Special session only	None
Grade Five	____	____	____
Grade Six	____	____	____
Grade Seven	____	____	____
Grade Eight	____	____	____

65-K Independent study opportunities are provided for:

	All students	Some students	No students
Regular Class Time	____	____	____
Time Scheduled For Independent Study	____	____	____

66-L Daily instruction in a developmental reading program is provided for:

	All students	Poor readers only	Not at all
Grade Five	____	____	____
Grade Six	____	____	____
Grade Seven	____	____	____
Grade Eight	____	____	____

67-O Assessment of student work includes:

	Grade Five	Grade Six	Grade Seven	Grade Eight
Portfolios	___	___	___	___
Rubrics	___	___	___	___
Standardized Tests	___	___	___	___
Teacher-made tests	___	___	___	___
Alberta Ed. CAMP	___	___	___	___
Observation Checklists	___	___	___	___

Other

_____

_____

68-G Instruction in the school is organized as:

	Grade Five	Grade Six	Grade Seven	Grade Eight
A separate subject approach	___	___	___	___
In interdisciplinary units throughout the year	___	___	___	___
In interdisciplinary units for part of the year	___	___	___	___
In a humanities/sciences block	___	___	___	___
Homeroom	___	___	___	___
Other	___	___	___	___

Appendix B

DEFINITIONS of the 18 MIDDLE SCHOOL ATTRIBUTES

1. Continuous Progress - A non-graded organization that allows students to progress at their own individual rate. Because individual differences are at the most pronounced stage during the transescent years, chronological groups ignore the variance.

2. Multi-Material Approach – A wide range of instructional materials are available for student and teacher use. This helps to address the range of interests, styles and stages of development.

3. Flexible Scheduling – Scheduling that gives ownership to the teaching teams based on the topic of study, groupings of the students and general learning needs. The program drives the schedule as opposed to the schedule dictating the program.

4. Social Experiences – Experiences that are appropriate to the interests and developmental levels of the students. Care is taken that experiences are not based on high school models and that students have opportunities to spend time with peers in and out of the instructional program.

5. Physical Experiences – Curricular and extra-curricular programs that are inclusive of all students, not eliminating some because of lack of ability or delayed development. Development of skill and modifications for variability in student growth are emphasized.

6. Intramural Activities – Activities that are inviting to all students and that do not over-emphasize competition to the point where some adolescents are eliminated or choose to eliminate themselves.

7. Team Teaching – Middle school teachers organize themselves in teams that capitalize upon their strengths and meet the needs of the students. Teaching teams often have common planning time, a common group of students, and freedom to group the students and construct the timetable as appropriate for their students' needs and the learning activities. This also facilitates interdisciplinary instruction.

8. Planned Gradualism – One of the purposes of the middle school is to provide a transition for the students from elementary school to high school. Programs in the lower grades of middle school thus represent elementary school and those in the higher grades more closely resemble high school programs.

9. Exploratory Studies – Variety in program satisfies young adolescent appetites for exploration. Mini-courses are often delivered in trimesters or shortened timeframes to allow for the greatest choice and to prevent boredom. Exploration as opposed to specialization is the emphasis.

10. Guidance Services – Specialized service should be available to students. Teachers should also be expected to take an advocacy role for students throughout the day. Group guidance meetings are often facilitated in student-teacher advisory sessions which generally meet daily for 10 – 20 minutes. Personal, social, and physical issues specific to the young adolescent are the foci of these sessions.

11. Independent Study – To facilitate the wide range of interests, abilities and levels of development, opportunities for individual time to address topics of interest are provided.

12. Basic Skill Instruction – The middle school makes no assumptions about students' skills as they come from the elementary school and facilitates special needs as they arise.

13. Creative Experiences – Student learning is enhanced when middle school students are given opportunities to express themselves in creative ways. Higher-order thinking skills are facilitated through such activities as student newspapers, debating, drama, role plays and simulations.

14. Security Factor – Each student in the middle school should feel safe and secure. This is a function of the advisory program, guidance program, teacher advocacy for students and the general climate of the school.

15. Evaluation – Assessment of students is continuous and focuses on patterns of learning as opposed to one-shot events. Openness, fairness and evidence of growth through performance are accentuated. Reporting is as individualized as possible and involves conferencing that often includes the student.

16. Community Relations – Student learning is enhanced through community and parent participation in the school. Programs such as parent volunteers, business partnerships, community service and job shadowing are some of the ways the community and the school meet.

17. Responsiveness – The school-wide program is seen as centred around the unique needs of young adolescents. A broad spectrum of services are available to students. Services address social, physical, emotional and academic needs. In-school and

community resources should be used. Aides and caretakers should not be overlooked as adults who can act as mentors for young adolescents.

18. Cooperative Learning – Due to the transescent's need for interaction with peers, the middle school classroom is the ideal place to provide learning opportunities that allow students to interact and use each other as a resource. The effective middle school teacher knows that this need will be met by the young adolescent one way or another.

Appendix C
ORIGINAL VERSION OF MIDDLE SCHOOL ATTRIBUTE SURVEY

PART I PLACE A CHECK MARK BEFORE THE ANSWER THAT SEEMS BEST TO EXPLAIN YOUR CURRENT PROGRAM AS IT RELATES TO THE QUESTION.

1-A Continuous progress programs which allow students to progress at their own individual rate regardless of the chronological age are:

__0__ not used at this time.
__1__ used only with special groups.
__2__ used only for the first two years.
__3__ used only by some students for all their years at this school.
__4__ used by all of the students for their entire program.

2-A Continuous progress programs are planned for a student over a span of:

__0__ not used at this time.
__1__ one calendar year.
__2__ two calendar years.
__3__ three calendar years.
__4__ four calendar years.

3-B The multi-textbook approach to learning is currently:

__3__ used in all or nearly all classes.
__2__ used in most classes.
__1__ used in a few classes.
__0__ not used in any classes.

4-B The instructional materials center in the building contains:

__4__ more than 5000 books.
__3__ 4000 to 4999 books.
__2__ 3000 to 3999 books.
__1__ 2000 to 2999 books.
__1__ 1000 to 1999 books.
__0__ less than 1000 books.

5-B The materials center had a paid staff of:

___3___ more than one certified librarian.
___2___ one certified librarian.
___1___ a part-time librarian.
___0___ no certified librarian help.

6-B For classroom instruction, audio visual materials other than motion pictures are used:

___4___ very frequently by most of the staff.
___3___ very frequently by a few of the staff.
and occasionally by the others.
___2___ occasionally by all of the staff.
___1___ very rarely by most of the staff.
___0___ very rarely by any staff members.

7-C The basic time block used to build the schedule is:

___3___ a ten to twenty-minute module.
___2___ a thirty minute module.
___1___ a forty-five minute module.
___0___ a sixty-minute module.
___4___ a combination of time so diversified that no basic module is defined.

8-C Which of the below best describes your schedule at present:

___0___ traditional
___1___ traditional, modified "block-time", "revolving period" or other such regular occurring modifications.
___2___ flexible to the degree that all periods are scheduled but are not identical in length.
___3___ flexible to the degree that changes occur within defined general time limits.
___4___ flexible to the degree that students and teachers control the daily time usage and changes occur regularly.
___ other _____

ATTACH A COPY OF THE MASTER SCHEDULE IF POSSIBLE

9-D Sponsorships for club activities are handled by staff members who:

__1__ are assigned sponsorships without additional pay.
__2__ are paid to assume club sponsorships that are assigned.
__3__ volunteer to sponsor club activities without pay.
__4__ are paid for sponsorship that they volunteer to assume.
__0__ staff members do not work with club activities.

10-D At present approximately what percent of your student body regularly participates in at least one club activity?

__0__ none as we have no club program.
__1__ 25 percent or less.
__2__ 26 percent to 50 percent.
__3__ 51 percent to 75 percent.
__4__ 76 percent to 100 percent.

11-F Interscholastic competition is currently:

__4__ not offered at this school.
__1__ offered in one sport only.
__0__ offered in two sports.
__0__ offered in several sports.

12-F Intramural activities often use the same facilities as interscholastic activities. When this causes a time conflict how do you schedule?

__0__ this does not happen because we have no intramural program.
__4__ this does not happen because we have no interscholastic program.
__4__ intramural activities take first priority and others schedule around their needs.
__1__ interscholastic activities take first priority and others must schedule around their needs.
other _____

13-G Team teaching, in which teachers jointly plan and carry out instructional activities for a group of students, operates for:

__4__ all students.
__3__ nearly all students.
__2__ about half of the students.
__1__ only a few of the students.
__0__ none of the students.

14-G What percentage of your teaching staff is involved in team teaching programs?

__4__ over 90%.
__3__ between 60% and 90%.
__2__ between 30% and 60%.
__1__ less than 30%.
__0__ none.

15-G A student in Grade Six averages about how many minutes per day in a team teaching program?

__4__ 180 minutes or more.
__4__ between 130 and 180 minutes.
__3__ between 90 and 130 minutes.
__2__ between 40 and 90 minutes.
__0__ 40 minutes or less.

16-G A student in Grade Eight averages about how many minutes per day in a team teaching program?

__4__ 180 minutes or more.
__4__ between 130 and 180 minutes.
__3__ between 90 and 130 minutes.
__2__ between 40 and 90 minutes.
__1__ 40 minutes or less.

17-H Which of the following best describes your school program as it evolves from enrollment to completion of the last grade?

__0__ completely self-contained program for the entire grade span.
__0__ completely departmentalized for the entire grade span.
__1__ modified departmentalized for the entire grade span.
__2__ program moves from largely self-contained to departmentalized.
__3__ program moves from largely self-contained to partially departmentalized.
other_____

_____

18-I The amount of student schedule time set aside for elective courses students may select:

__0__ decreased with each successive grade.
__0__ is the same for all grades.
__3__ increases with each successive grade.
__2__ varies by grade level but not in any systematic manner.
__0__ does not exist at any grade level.

19-J Guidance services are available upon request for:

__4__ all students every day.
__3__ all students nearly every day.
__2__ most of the students on a regular basis.
__1__ a limited number of students on a limited basis.
____ other_____

20-J Guidance staff members:

__4__ always work closely with the teachers concerning a student.
__3__ often work closely with the teachers concerning a student.
__1__ seldom involve the teachers in their work with the students.
__0__ always work independently of the teachers.

21-J Guidance counselors:

__0__ are not expected to help teachers build their guidance skills.
__1__ are expected to help teachers build their guidance skills.
__2__ provide individual help to teachers interested in building their guidance skills.
__3__ provide inservice activities designed to help teachers build their guidance skills.

22-J How many guidance counselors do you have in your middle school?

__0__ none.
__1__ one.
__2__ two.
__3__ three or more.

23-J Clinics or special classes to treat the problems of students with poor basic learning skills are:

__0__ not available at this time.
__4__ available to all students needing such help.
__2__ available only to the most critically handicapped learners.
____ other_____

24-I. The amount of time provided in the classroom for instruction in basic learning skills:

__0__ increases with each successive grade.
__0__ remains constant with each successive grade.
__2__ decreases with each successive grade.
__4__ varies greatly due to the individualized program teachers operate.

25-M Concerning a school newspaper, our school has:

__1__ no official student school newspaper.
__2__ an official student school newspaper that publishes no more than four issues per year.
__3__ an official school newspaper that publishes five or more issues per year.
____ other_____

_____

26-M Concerning school dramatic activities, most students: this

__0__ do not get experience in creative dramatics enrolled in this school.
__4__ get at least one or two opportunities to use their acting skills while enrolled in this school.

27-M Dramatic productions at this school are produced from:

__1__ purchased scripts only.
__3__ materials written by students only.
__4__ materials written by students and purchased scripts.
____ other_____

_____

28-M This school has oratorical activities such as debate, public address, etc.:

__4__ as a part of its planned program of instruction.
__3__ as a part of its enrichment program.
__0__ not included in school activities.
____ other_____

_____

29-M Talent shows are:

__0__ not a part of our program.
__3__ produced by students at each grade level.
__2__ produced once a year on an all-school basis.
__4__ produced at each grade level with some of the acts entering an all-school talent show.

30-N In the operational design of this school the role of the teacher as a guidance person is:

__4__ given a very strong emphasis.
__3__ encouraged.
__2__ mentioned to the staff but not emphasized.
__0__ left strictly to the individual teacher's personal motivation.
__0__ not important in our guidance operational plan and therefore not encouraged at all.
____ other_____

31-N As a general policy, in the teacher-pupil relationship:

__4__ formal provisions are made for the teacher to provide specified guidance services.
__3__ teachers are expected to provide guidance service for all of their pupils.
__1__ no formal provisions are made for the teacher to provide specified guidance service.
__2__ teachers are expected to provide guidance services to only a limited number of pupils.
____ other_____

32-O A student's academic progress is formally reported to parents:

__1__ two times per year.
__3__ four times per year.
__4__ six times per year.
____ other_____

33-O Parent-teacher or parent-teacher-student conferences are held on a school-wide basis:

__0__ not at all.
__1__ once per year.
__2__ twice per year.
__3__ three times per year.
__4__ four times per year.
____ five or more times per year.

34-P Community service projects by the students are:

__0__ not a part of our program.
__2__ carried out occasionally for a special purpose.
__4__ an important part of the planned experiences for all students while enrolled in this building.

35-P This school currently has:

__0__ no parents' organization.
__1__ a parents' organization that is relatively inactive.
__2__ a parents' organization that is active.
__3__ a parents' organization that is very active.

PART II FOR EACH QUESTION IN THIS SECTION CHECK ALL THE ANSWERS THAT APPLY

36-B Which of the following types of materials are housed in your instructional materials center?

__1__ general library books
__1__ current newspapers
__1__ below grade level reading materials
__1__ current magazines
__1__ files of past issues of newspapers
__1__ filmstrips
__1__ micro films
__1__ phonograph records
__1__ motion pictures (include this if you are a member of a central service)
__1__ card catalog of materials housed
__1__ student publications
__1__ files of past issues of magazines
__1__ ditto and mimeo machines
__1__ maps, globes, and charts
__1__ collections (coins, stamps, insects, art, etc.)
__1__ audio tapes
__1__ overhead transparencies
__1__ display cases or areas.
__1__ video tapes
__1__ above grade level reading materials

37-C The master class time schedule can be changed by teachers when need arises by:

__4__ planning with other teachers on a daily basis.
__3__ planning with other teachers on a weekly basis.
__2__ seeking administrative approval for special change.
__1__ requesting a change for next semester.
__0__ requesting a change for next year.
____ other_____

_____

38-D School dances are held for:

__*__ grade five
__*__ grade six *One point for each item not checked.
__*__ grade seven
__*__ grade eight

39-D A club program for students is offered for:

__1__ grade five
__1__ grade six
__1__ grade seven
__1__ grade eight

40-E The physical education program includes:

__1__ archery
__1__ badminton
__1__ basketball
__1__ bowling
__1__ dancing
__1__ field hockey
__1__ football
__1__ gymnastics
__1__ soccer
__1__ softball
__1__ tennis
__1__ track and field
__1__ wrestling

41-F The intramural program includes:

__1__ team sports
__1__ individual sports
__1__ various club activities
__1__ coed activities
____ other_____

_____

42-I Students are allowed to elect courses from a range of elective courses:

__1__ in grade five.
__1__ in grade six.
__1__ in grade seven.
__1__ in grade eight.
__0__ not at all.

43-I Electives currently offered in this building are: (Check those you offer from this list and add any not listed that you offer)

__1__ art
__1__ band
__1__ vocal music
__1__ drawing
__1__ drama
__1__ orchestra
__1__ wood shop
__1__ speech
__1__ typing
__1__ natural resources
__1__ journalism
__1__ foreign language
__1__ family living
__1__ unified arts
__1__ creative writing
____ other_____
____ other_____
____ other_____

44-K How much time would you estimate the average student spends in independent study for each grade listed below:

____ * minutes per day in grade five.
____ * minutes per day in grade six.
____ **minutes per day in grade seven.
____ **minutes per day in grade eight.

*One point for each if over 20 minutes.
**One point for each if over 30 minutes.

45-K Students working in independent study situations work on topics that are:

0 we have no independent study program.
1 assigned to them by the teacher.
2 of personal interest and approved by the teacher.
2 of personal interest and unrelated to classroom work.
____ other _____

46-L Students with poor basic skills can get special help in the following areas. (Check only those areas where special help on an individual basis is provided by special staff members trained to treat such situations.)

1 reading
1 spelling
1 physical education
1 mathematics
1 grammar
____ other _____

47-M Dramatic presentations by students are:

0 not a part of the school program.
1 a part of the activities program.
2 a part of certain class activities planned by the teachers.
____ other _____

48-O Formal evaluation of the student's work is reported by use of:

1 a standard report with letter grades or number grade.
2 teacher comments, written on a reporting form.
3 parent-teacher conferences.
4 parent-teacher-student conferences.
____ other _____

49-O Check each of the following areas of pupil development evaluated:

__1__ attitudes toward courses.
__1__ attitudes toward school.
__1__ attitudes toward teachers.
__1__ changes in self-concept.
__1__ sociometry (social relations).
__1__ motivation to learn.
__1__ personality development.

50-P In regard to community relations this school currently:

__0__ does not send out a parents' newsletter.
__1__ sends out a parents' newsletter when need arises.
__2__ sends out a parents' newsletter on a scheduled basis.
__1__ uses the commercial newspaper.
__1__ uses district-wide newsletter to send out information related to the school.
____ other_____

51-P The staff presents informational programs related to the school's functions:

__1__ when requested by the parents.
__2__ once or twice a year at regular parents' meetings.
__3__ at open house programs.
__4__ at regularly scheduled "seminar type" meetings planned of interested parents.
____ other_____

52-Q From the specialized areas listed below, check each which is available to students in your building. (Note that a service need not be housed within the school building to be available to your students.)

__1__ guidance counselors.
__1__ school nurse.
__1__ school psychologist.
__1__ visiting teacher.
__1__ speech therapist.
__1__ diagnostician.
__1__ clinic services for the emotionally disturbed.
__1__ special education programs.
__1__ special reading teacher.
_____ other_____

_____

53-R Teaching teams are organized to include:

__1__ fully certified teachers.
__1__ teacher aides.
__1__ clerical aides.
__1__ volunteers.
__1__ students teachers.
_____ other_____

_____

54-R From the following list check those types of auxiliary helpers available in your building:

__1__ paid paraprofessionals.
__1__ volunteer helpers from the community.
__1__ volunteer helpers from the student body.
__1__ student teachers and interns.
__1__ high school "future teachers" students.
_____ other_____

_____

Part III FOR EACH QUESTION IN THIS SECTION PLEASE CHECK THE BOX OR BOXES THAT BEST DESCRIBE YOUR PROGRAM.

55-D School social functions are held at this school:

	During the Afternoon	During the Evening
Grade Five	2	1
Grade Six	2	1
Grade Seven	2	1
Grade Eight	2	1

56-E The physical education program serves:

	All students	Some students	No students
Grade Five	4	1	0
Grade Six	4	1	0
Grade Seven	4	1	0
Grade Eight	4	1	0

57-E What degree of emphasis does the physical education program give to the competitive and developmental aspects of the program for boys and girls?

		Boys	Girls
Competitive Aspects			
	High	0	0
	Medium	2	2
	Low	4	4
Developmental Aspects			
	High	4	4
	Medium	3	3
	Low	0	0

58-E Intramural activities are scheduled for:

	All students	Boys only	Girls only	No students
Grade Five	4	1	1	0
Grade Six	4	1	1	0
Grade Seven	4	1	1	0
Grade Eight	4	1	1	0

59-I Exploratory courses based on student interest are offered for:

	At least twice per week	Once per week	Not at all
Grade Five	4	3	0
Grade Six	4	3	0
Grade Seven	4	3	0
Grade Eight	4	3	0

60-J How do your guidance counselors handle group guidance sessions?

	Regular sessions several times per week	Special session only	None
Grade Five	4	1	0
Grade Six	4	1	0
Grade Seven	4	1	0
Grade Eight	4	1	0

61-K Independent study opportunities are provided for:

	All students	Some students	No students
Regular Class Time	4	2	0
Time Scheduled For Independent Study	4	2	0

62-L Daily instruction in a developmental reading program is provided for:

	All students	Poor readers only	Not at all
Grade Five	4	2	0
Grade Six	4	2	0
Grade Seven	4	2	0
Grade Eight	4	2	0

Appendix D
REQUEST FOR NOMINATION OF MIDDLE SCHOOL EXPERTS

Keith Hadden
1114 – 14 Street South
Lethbridge, AB
T1K 1T8
Ph. 403-223-2902
Fax 403-223-4142

November 1, 1998

Alberta Middle School Association
Executive Members
C/o Marty Klipper, President
Eastview Middle School
3929 – 40 Avenue
Red Deer, Alberta
T4N 2W5

Dear Marty:

As part of a Masters Thesis at the University of Lethbridge, I am surveying ten middle schools in the Province. The survey I wish to use determines the level of implementation of middle school programs in a school.

In order to validate the survey as an accurate representation of middle school programming in Alberta, I am requesting the names of four people in the Province whom your Association would nominate as experts in middle levels education. These people will be asked to read the survey and either validate it as representing the essential elements of middle schooling in Alberta or offer suggestions for changes.

I would appreciate any assistance you can provide in nominating four people who are recognized experts in the field of middle levels education in the Province and would ask that you forward their names to me at your convenience.

It is my hope that this project will contribute to a greater understanding of middle level education in the Province and I would be happy to share the results when complete.

If you have any questions please feel free to call me at 329-4927 (home) or 223-2902 (school). Also feel free to contact the supervisor of my study, Dr. David Townsend at 329-2731 and/or any member of the Faculty of Education Human Subject Research Committee if you wish additional information. The chairperson of the committee is Dr. Richard Butt who can be reached at 329-2434.

Yours very truly,

Keith Hadden
E-mail: keith.hadden@horizon.ab.ca

Appendix E
REQUEST FOR FIELD VALIDATION

November 15, 1998

Keith Hadden
1114 – 14 Street South
Lethbridge, AB
T1K 1T8

Dear Colleague:

I am seeking your expertise in a Master's Thesis that I am writing at the University of Lethbridge under the supervision of Dr. David Townsend. You were nominated by the Alberta Middle School Association as an expert in the field of middle level education. As part of my thesis, I will be surveying ten middle schools in the Province to ascertain the implementation level of middle school programming in their schools. I am requesting that you read the enclosed survey at your convenience with the following questions in mind:

1) Does this survey adequately represent the most significant attributes of middle schools?
2) Are there any aspects of the survey that are unclear?
3) Do you have any suggestions for modifications to the survey?

I would appreciate a response from you as soon as you are able. I recognize the time constraints under which you work but hope to avail myself of your expertise. Please let me know if you would be interested in a report of the results of my study.

Any information you provide will be kept confidential and no information in my study or in conversations relating to the study will identify names of people or schools.

If you have any questions please feel free to call me at 329-4927 (home) or 223-2902 (school). Also feel free to contact the supervisor of my study, Dr. David Townsend at 329-2731 and/or any member of the Faculty of Education Human Subject Research Committee if you wish additional information. The chairperson of the committee is Dr. Richard Butt who can be reached at 329-2434.

As a small token of my appreciation, I am enclosing a middle school mouse pad, which I hope will be of benefit to you. Thank you for your assistance in this matter.

Yours very truly,

Keith Hadden
Ph: 403-329-4927
E-mail: keith.hadden@horizon.ab.ca

Appendix F

COVER LETTER

December 2, 1998

Keith Hadden
1114 - 14 Street South
Lethbridge, AB
T1K 1T8

Dear Colleague:

Your middle level school is one of a population of Alberta public schools that contain grade six in some combination with other grades from four to nine. As a principal of a school in this population, you are being asked to participate in a study on middle level education in Alberta.

I would greatly appreciate you taking the time to complete the enclosed survey. Doing so will provide valuable information regarding middle level education in Alberta and will also help me fulfil a responsibility to the University of Lethbridge as part of my Master's Thesis.

I ask that you complete the enclosed questionnaire and School Data Information Sheet and return them to me in the self-addressed stamped envelope as soon as you possibly can. I appreciate the time constraints that you face and have attempted to keep the survey as brief as possible.

Any information you provide will be kept confidential and no information in my study or in conversations relating to the study will identify names of people or schools. You have the right to withdraw without prejudice at any time.

As a small token of my appreciation, please accept the enclosed pen. Also, please indicate if you wish to receive a report of the status of middle level education in Alberta, upon the completion of this study.

If you have any questions please feel free to call me at 329-4927 (home) or 223-2902 (school). Also feel free to contact the supervisor of my study, Dr. David Townsend at 329-2731 and/or any member of the Faculty of Education Human Subject Research Committee if you wish additional information. The chairperson of the committee is Dr. Richard Butt who can be reached at 329-2434.

Thank you for your willingness to help with this professional undertaking. I trust that middle level educators in Alberta will be served by our combined efforts.

Yours very truly,

Keith Hadden
Ph: 403-329-4927
E-mail: keith.hadden@horizon.ab.ca

BEST COPY AVAILABLE

Appendix G

SCHOOL DATA INFORMATION SHEET

1. _____ *School Name.*

2. _____ *Address.*

3. _____ *Principal's Name.*

4. _____ *Date survey was completed and mailed.*

5. _____ *Approximate median income of households served by our school.*

6. _____ *Number of ESL students in the school.*

7. _____ *Average number of student suspensions in a year.*

Appendix H

LETTER OF COPYRIGHT PERMISSION

Copyright Permission

I, Peggy Gaskill, do hereby grant Keith Hadden permission to use the publication entitled ***Middle School Concept Implementation Survey*** copyrighted 1997 by Michigan Schools in the Middle.

I understand that the survey is to be used in a thesis at the University of Lethbridge and that acknowledgement will be given to the original source.

Peggy E. Gaskill

Peggy Gaskill, Ph.D.
Central Michigan University

03-09-99
Date

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